Cement MILL SECTION of

**Concrete**

Vol. 23 OCTOBER, 1923 No. 4

# New Pyramid Plant Starts Operations

The large plant of the Pyramid Portland Cement Co. located on the outskirts of Valley Junction near Des Moines, Iowa, which recently started operation is one of the most modern and completely equipped plants of its kind in the United States. Actual production was started on August 15, although the machinery was started and tried out earlier. One kiln unit was put into operation, but two units are installed and provisions have been made for installing two more to provide for future expansion.

The limestone and shale from which the finished cement is manufactured are quarried in the company's own quarries at Gilmore City and hauled to the Des Moines plant in special trains. As the cars arrive at the plant they are shunted onto the Pyramid spur, where they await the company's locomotives to take them to the dumping machine.

One car at a time is hauled up a steep inclined track to the rotary car dumper[1] which machine seizes the entire car and turns it completely over, dumping the rock into the hopper below.

At the bottom of the hopper is a No 18 Superior McCauley gyratory crusher[2] which reduces the rock to small sizes. From the primary crusher the rock drops into a crusher pit 32 ft. deep from which it is picked up by chain and bucket elevators and transported to the hammer mill[3].

The hammer mill, or secondary crusher, is filled with steel bars hung on a center shaft which revolves at a rate of 700 revolutions per minute. This reduces the rock until the largest pieces will pass a 1½-in. screen. From the secondary crusher, the rock is elevated to screens which sort it into 6 different sizes, discharging into 6 bins below.

From these bins, rock may be sold for commercial purposes although this is only a side line of the main business of manufacturing cement.

A 36-in. rubber conveyor belt operates from the sorting screen and transports the crushed rock to the rock storage bins for cement raw material. Similar conveyor belts run through tunnels beneath the storage bins and convey the crushed limestone and shale to the raw grinding department.

The rock is conveyed to two wet kominuters[5] where water is added for mixing purposes. Each mill has a revolving drum holding approximately 6 tons of 5-in. steel balls which further crush the limestone and shale and mix it with the water. An elevator carries the mixture to two trixes,[5] which sort out the coarse material and send it back to the kominuter for further grinding and allow the finely ground material to go on to the agitating trough. The elevator which carries the mixture from the kominuters consists of a single elevator chain with ordinary malleable iron buckets.

The agitating trough is equipped with angle irons moving around in such a nature as to stir up the mixture as it comes from the trixes and before it goes to the tube mills. The final grinding of the raw material is done in a wet tube mill,[5] lined with Jasper stone and containing about 31 ½ tons of 1¼-in. steel balls and revolving at a rate of 20 revolutions per minute. From the tube mill, the slurry is carried through pipes into three correcting basins for the chemists' first test.

From the correcting basin, the slurry goes into a large oblong mixing basin[5] having a capacity of 2,000 bbls. of slurry. In this mixing basin, the chemist secures the correct mixture by taking from one and then the other of the correcting basins. After the proper mixture has been obtained, the slurry passes into the storage basin, having a capacity of 2,700 bbls. and is ready to be supplied to the kilns. Slurry pumps of the plunger type force the slurry from the storage basin to the kiln.

The kilns[6] are 240 ft. long and 10 ft. in diameter expanding to 11 ft. 3 in. in diameter at the burning zone. Each kiln weighs 675,000 lbs. without the lining and is lined with fire brick and a special insulation of Sil-O-Cel.[7]

## The Coal Grinding Department

Powdered coal is used for fuel in the kilns and is prepared in the coal grinding department.

When the coal is delivered at the plant, it passes along a conveyor belt to the coal cracker.[3] This is devised along the plan of the hammer mill and breaks up the coal into lumps of ⅛ in.or less. From here it is conveyed by a belt through the coal bins and into the coal dryer[8]. The dryer is of the revolving steel drum type, through which hot air is passed and which removes the moisture from the coal before it is pulverized. The

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[1] Car Dumper Equipment Co., Chicago, Ill.

[2] Worthington Pump & Machinery Corp., New York city.

[3] Dixie Machinery Co., St. Louis, Mo.

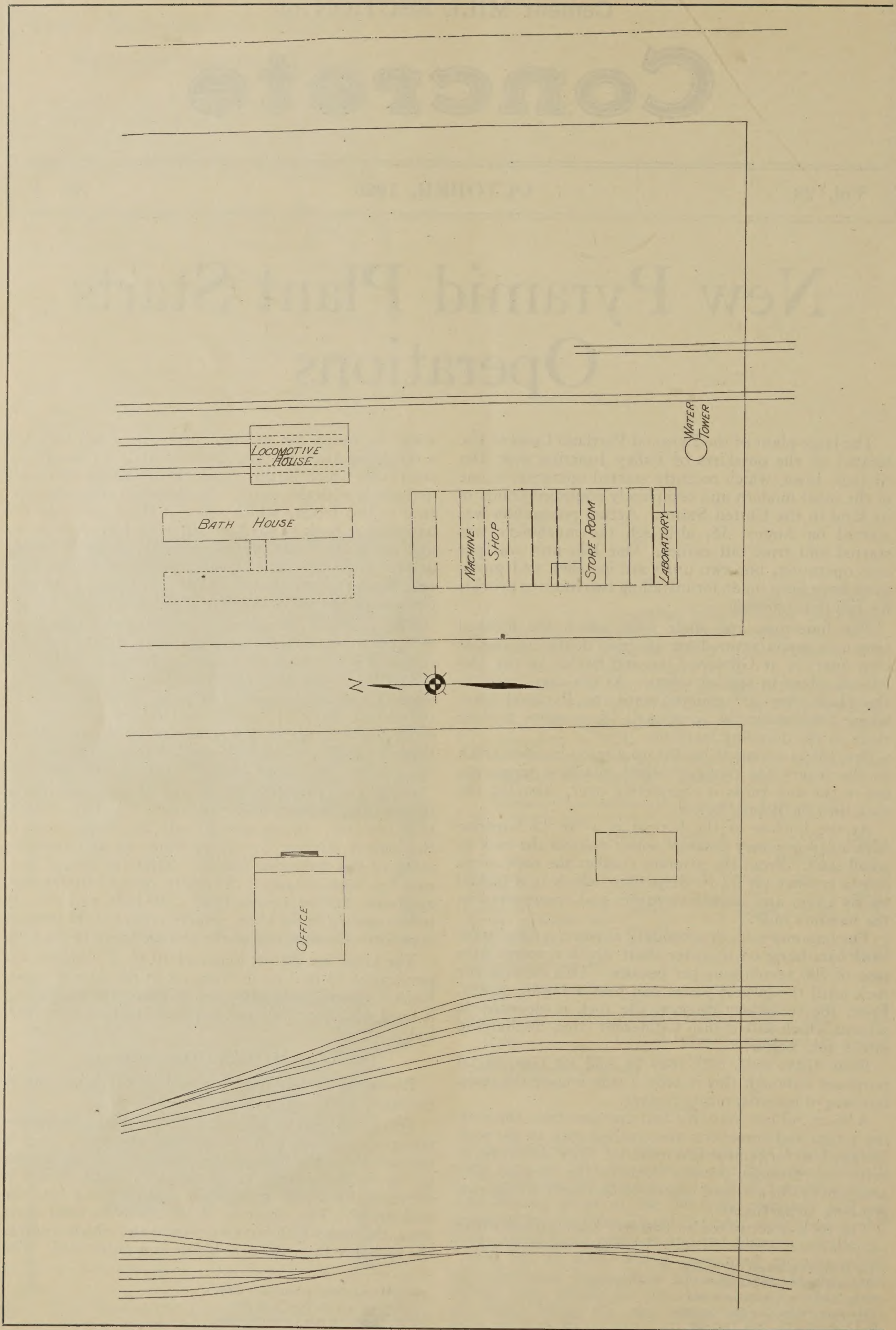
[4] New York Rubber Co., New York city.

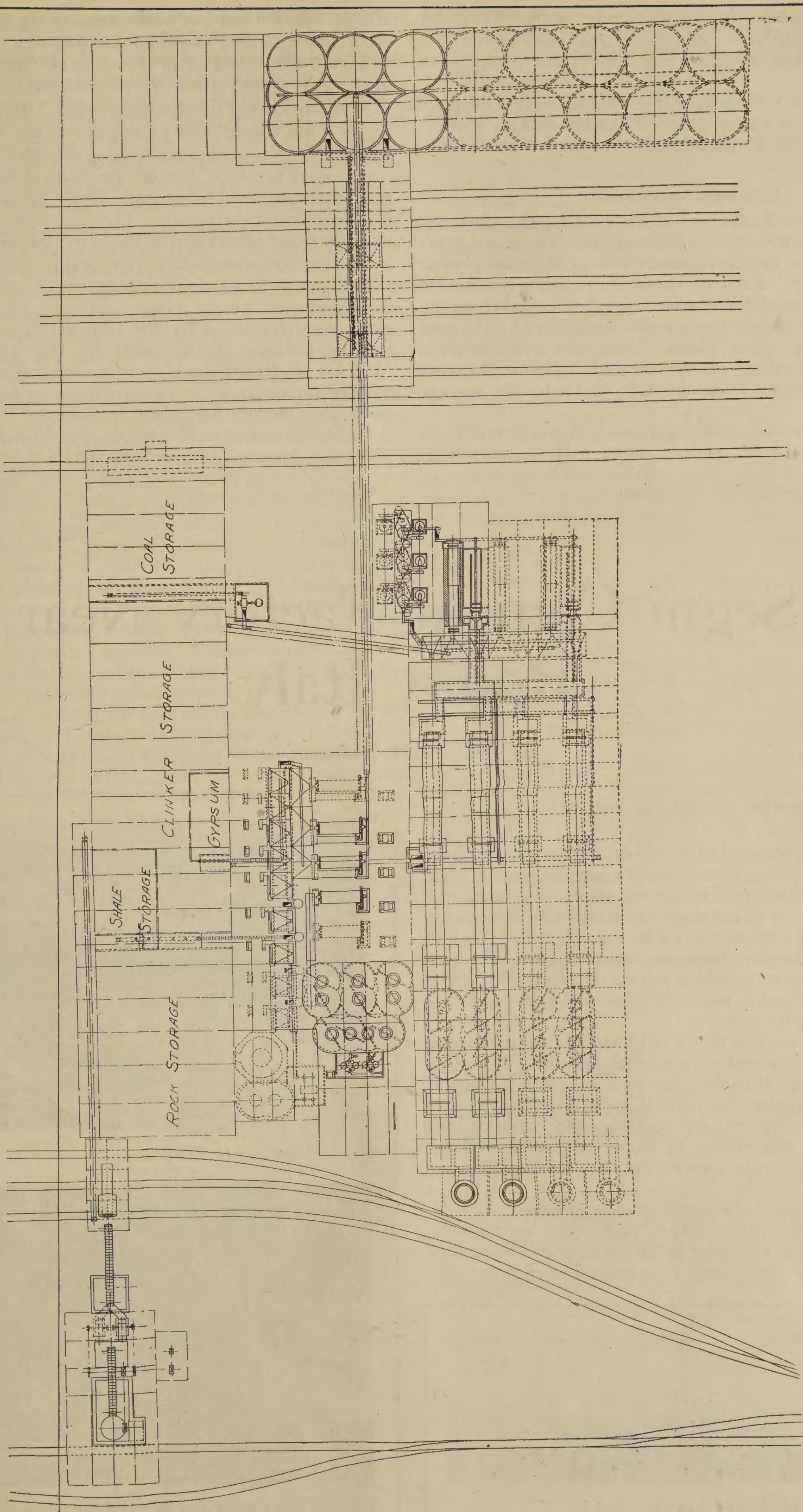
[5] F. L. Smidth & Co., New York city.

[6] Worthington Pump & Machinery Corp.

[7] Celite Products Co., New York city.

[8] F. D. Cummer & Son, Cleveland, Ohio.


LOCOMOTIVE HOUSE
BATH HOUSE
MACHINE SHOP
STORE ROOM
LABORATORY
WATER TOWER
N
OFFICE



Plan of Pyramid Portland Cement Company's Plant coal pulverizers are high side 5-roller mills.[9] Three air separators distribute the pulverized coal to the kiln bins, which feed the coal injectors at the firing end of the kiln.

As the clinker discharges from the kilns, it is dropped into two coolers where a forced draft of cold air reduces its temperature so that it can be handled by the conveying machinery.

### Clinker Grinding

From the discharge end of the coolers, the clinker is conveyed to three clinker kominuters. These are practically like the raw kominuters except that the clinker is ground dry. Each of these kominuters contains 6 tons of 5-in. steel balls, which grind the clinker to the proper size for the two tube mills charged with 31½ tons of ⅞-in. x 1½-in. steel slugs. These tube mills complete the finish grinding of the cement. Belt conveyors carry the cement from the tube mills to the storage silos.

The cement stockhouse consists of 6 silos each 32 ft. in diameter by 80 ft. high, giving a total storage capacity of 110,000 bbls. of bulk cement. In these silos an elaborate screening system consisting of a rotary screen sifts out any tramp iron which might have been sent over to the warehouse with the cement.

The stockhouse is equipped with 2 Bates packers[10] for packing the cement as shipments are made.

The plant is equipped with a machine shop where spare parts are kept and where a complete mechanical equipment insures immediate repair of any breakages in the plant equipment. The chemical laboratories and the plant offices are in the same building.

The various pieces of equipment throughout the plant are driven by individual motors, the electric power being purchased at the plant. Motors for the crusher plant were furnished by the General Electric Co. and for the balance of the plant by the Allis-Chalmers Mfg. Co. Belts are used from the smallest to the largest motors although some chain drives as well as direct connected motors have been installed.

E. Struckmann, under whose direction the Pyramid plant was designed and constructed, is general manager.

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[9] Raymond Bros. Impact Pulverizer Co., Chicago, Ill.

[10] Bates Valve Bag Co., Chicago, Ill.

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# Segni Cement Factory Near Rome, Italy

By William B. Newberry

Abstract of Dr. Ferrari's Article in *Zement* for July 19, 1923

In the neighborhood of Segni occur limestone, pozzuolana, leucite, silica, iron-bearing minerals, etc. in great quantity. The peculiarities of these raw materials make it possible to regulate the mixtures very exactly so that various products can be manufactured, including portland cement, "mixed cement", high-iron cement white cement, etc. of which a total of over 2,000 barrels (American rating) is made daily as well as 8 to 15 tons of potash as a by-product.

At present machinery for only half the total capacity of the plant is installed, or 1,000 barrels. The plant consists today, therefore, of two dryers for the raw materials, one rotary kiln and three tube mills for either raw mix or cement with facilities for doubling the output. The machinery is from the factory of the Fried, Krupp Grusonwerk Co. at Magdeburg, in Germany.

The limestone is brought from a quarry two miles away, where it lies in a 300-ft. bluff, very hard and requiring blasting, the holes being made with compressed air drills. Enough stone is quarried to supply both

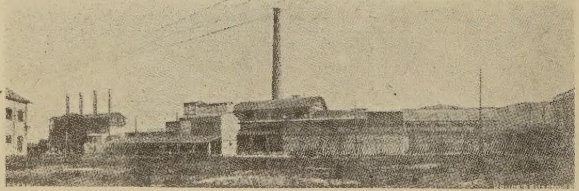


Fig. 1—General View of the Factory

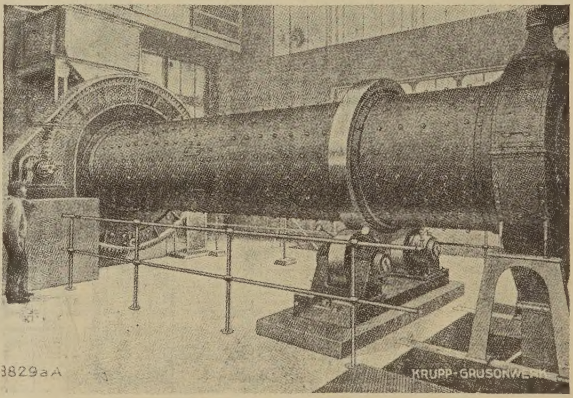


Fig. 2—Combination Tube Mill

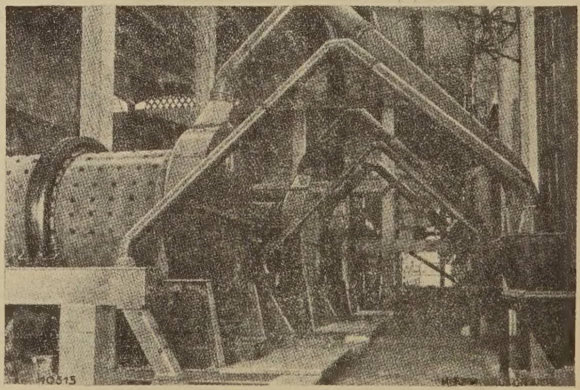


Fig. 3—Dust Collectors on the Tube Mills

the cement plant and the neighboring lime kilns. Duplicate crushers are installed, each capable of producing 27 tons per hour lump stone for the lime kilns and 16 tons of fines for the cement works.

Power for the machinery is supplied by an electric current of 20,000 volts reduced to 500 volts at the point of use. The crushers are driven by 35 H. P. motors, the air compressor by 70 H. P. and for the cable railway 40 H. P. is provided. This cable way carries about 50 tons an hour and delivers the crushed limestone either to the lime kilns or the cement plant, where it is automatically dumped into large reinforced concrete bins.

In order that possible breakdowns of the cable railroad shall not interrupt the operation of the plant for lack of material, a great pile of raw limestone is kept near the bins and can be transported to the latter by means of a bucket elevator.

Near the plant are stored quantities of pozzuolana, leucite, high silica tufa and high iron minerals, which are used for the preparation of the raw materials for portland cement, high iron cement, white cement, high lime cement, etc. The leucite, tufa and iron ores are carefully dried at a temperature not above 100° C. Colored or white pozzuolana is added for the production of "mixed cement", especially adapted to water and acid-proof structures. A careful drying is necessary to prevent the expulsion of the water of hydration of the soluble silica and the consequent loss of the peculiar hydraulic properties of the "mixed cements." The residue from pyrites burning, from a neighboring sulfuric acid plant, is used for increasing the iron content in these raw materials when necessary.

"Naphtha" is used for fuel in the dryers and rotary kiln. A tank of 1,500 cubic meters capacity is used as a central supply and before passing to the dryer burners is warmed by the waste gases from the dryers, and similarly the oil for the kiln fuel is heated by the air from the clinker cooler at about 300° F. The "Naphtha" is delivered to the kiln burners under an air pressure of two atmospheres. Two motors aggregating 100 H. P. drive the various oil pumps and air compressors.

The limestone from the quarry is drawn from the reinforced concrete bin and conveyed to a secondary crusher where it is reduced to about one inch size. The rotary dryers are 6.6 ft. in diameter and 52 ft. long.

From the dryers the rock is discharged directly into a roll crusher, where it is reduced to half-inch size.

A secondary drying system is provided for the pozzuolana, leucite, tufa and pyrites residue, lacking only the crusher, which the size of these materials renders unnecessary.

These various materials, when dry, are stored in separate bins from which they may be drawn at will to a four compartment bin over each raw tube mill. From these, any proportion of limestone, pozzuolana or leucite, tufa and iron oxide may be drawn to produce any desired quality of "mixed cement."

Each bin is provided with a revolving plate feeder, the four of which can supply either tube mill and are driven by a common shaft. Once put in operation these revolving tables deliver the above mentioned raw materials in proportioned quantities to a common bin immediately adjacent to the tube mill. These latter, of which three have already been installed, are combination ball and tube mills 6 ft. x 25 ft. direct driven by slow speed motors through a train of gears. These motors carry a load of 360 H. P. at 180 R. P. M. and the mills produce 100 tons of raw material per hour, or 55 to 75 tons of cement (275 to 375 barrels) with a fineness of 90% through a sieve of 180 meshes to the inch.

The raw material is conveyed by means of screw conveyors, bucket elevators and feeders to six reinforced concrete "mix" bins of a total capacity of 785 cu. yds. so arranged that the contents of any bin can be easily and quickly transferred to any other and well mixed, insuring a homogeneous and uniform product.

This "mix" is transferred to the large kiln feed tanks and after passing through a moistening apparatus enters the kiln.

The present kiln, as well as one shortly to be installed is 197 ft. long x 8.2 ft. diameter, with a movable hood. The kiln is supported on four pairs of rolls and is driven at about the middle by a 36 H. P. motor with variable speed. It is lined with 9-in. fire brick, and its load is 880 barrels clinker (of 376 lbs.) per 24 hour day. The "naphtha" consumption does not exceed 15% of the output of clinker (132 lbs. per barrel). [The writer

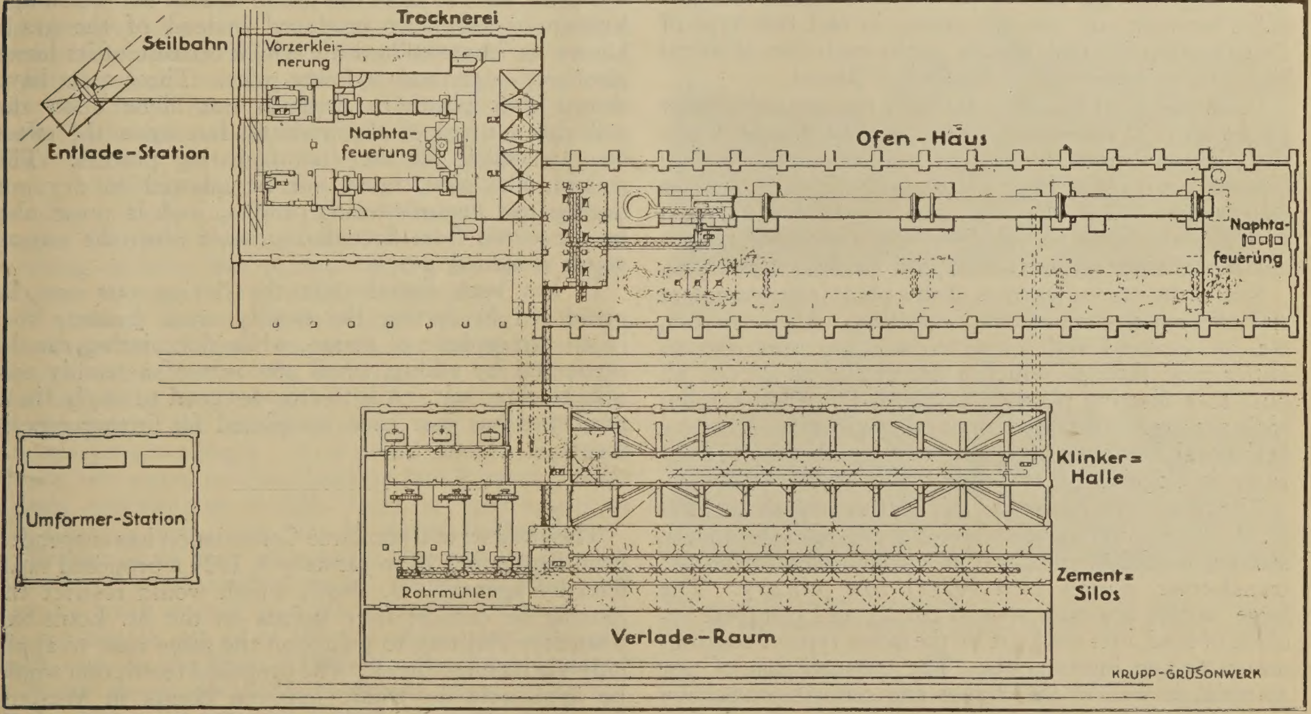
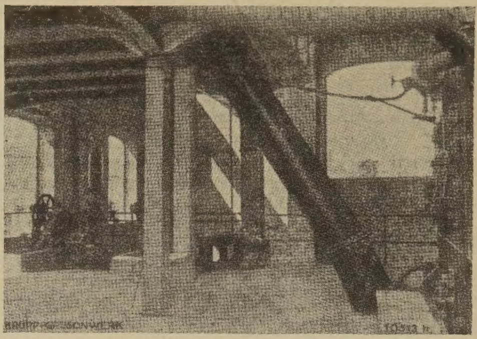
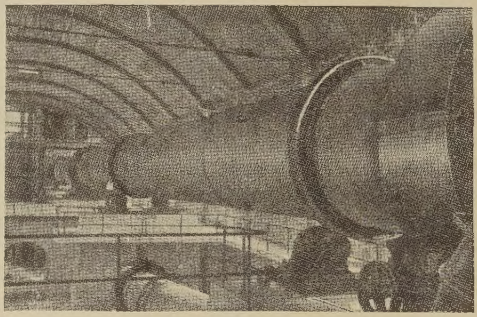


Fig. 4—Plan Showing Layout of Plant





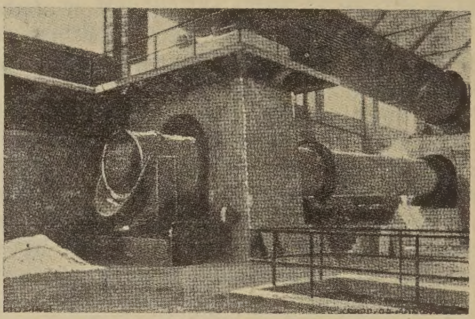


Fig. 5 (Upper Left)—Pumping Outfit for Handling Fuel Oil

Fig. 6 (Upper Right)—Oil Firing Apparatus for the Kilns

Fig. 7 (Lower Left)—Kiln and Kilnroom

Fig. 8 (Lower Right)—Clinker Cooler

does not give any data as to the quality of the "naphtha" used.]

The kiln is connected with a series of dust chambers in which the flue dust is collected by means of the Cottrell process. The masonry stack is 200 ft. high x 8.2 ft. inside diameter, the same size as the kiln, and underneath is the clinker cooler, 66 ft. long x 6 ft. diameter.

The clinker from the cooler passes to a storage room 150 ft. long x 60 ft. wide and 40 ft. high, holding 5,000 tons clinker and divided into several compartments to allow for testing of different runs of clinker. It is thence transported to the finish grinding mills.

There is a separate grinding plant for gypsum, etc. which is added to the clinker by means of a table feeder as it passes to the grinding mills. Throughout the plant large storage bins of reinforced concrete are provided between any two operations, in fact this type of Construction is used almost to the exclusion of metal bins, etc. as employed in the United States.

From the combination tube mills the ground cement passes to a 22 compartment storage warehouse where the different kinds of cement are separately stored; from here it is conducted to automatic sacking machines installed on rails so that they can be quickly connected with any storage bins. By means of a mechanical conveyor the bags are next delivered to the freight cars.

One of the salient features of this plant is the complete and efficient system of dust-collecting. All conveyors, etc. are covered and connected with an inlet and an outlet pipe through which a current of air carries all dust to a filtering plant. An 18 H. P. motor handles each system. The dust conducting pipes are nowhere horizontal, but are arranged in inverted V shaped form to avoid clogging by settlement of dust.

The 38 electric motors in this plant carry about 1400 H. P. The power current, which serves also the quarry motors, is of 500 volts and 44 cycles, drawn from the transformer station with 20,000 volt primary. The large motors are on a special circuit and complete records of load, etc. are kept by the latest type of continuous recording instruments. The consumption of raw material as well as the clinker and cement production is carefully followed by automatic scales and registers, as are also the pressure, temperature and composition of the exhaust gases from both dryers and rotaries, by means of draft gauges, pyrometers and orsat apparatus.

The chemical composition of the raw materials in the quarry, etc. the "mix" and clinker, as well as their physical properties, are continuously tested in an elaborately equipped laboratory, where other researches are carried on covering all kinds of cements and similar materials.

## Way to Make Better Lime

Experiments conducted at the Bureau of Standards have shown a way to improve the manufacture of hydrated lime so that the grade known as "finishing" hydrate is regularly produced instead of the grade known as "masons" hydrate which because of its lesser plasticity commands a lower price. These tests have shown that plasticity depends not alone upon the colloidal content of the hydrate, but upon the effect on this colloid of the manufacturing process. The colloid, like glue, must not be allowed to dry out during the manufacturing process, and it must also be prevented from flocculating itself when the mixing water is added preparatory to use.

It has been found that the drying out can be prevented by letting the freshly made hydrate cool in an atmosphere of steam, while flocculating can be prevented by adding small amounts of a readily soluble calcium salt. A hydrator designed to apply these principles has just been completed for further experiment.

The Interstate Commerce Commission has suspended from September 10 to January 8, 1924 a proposed tariff filed by agent E. B. Boyd, which would restrict the routing on cement from points on the St. Louis-San Francisco Railway to points on the same road to apply only via its lines direct. The proposed restriction would be applicable on traffic between points in Western Trunk Line Territory.

# How We Drill, Blast and Keep Records

By E. J. Strock
Superintendent, Colorado Portland Cement Co.

The superintendent of a large shale and limestone quarry describes in detail a successful system of blasting. Abstracted from *The Explosives Engineer*

Specially prepared forms, photographs and blue prints are used for keeping a record of each of our blasts from the time we start to drill the holes until the smoke from the shot clears away. I regard the keeping of careful records as a great aid in securing consistently satisfactory results.

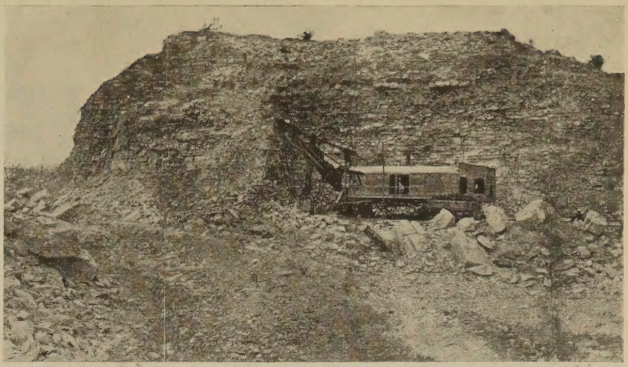
The quarries of the Colorado Portland Cement Co. are on the north bank of the Arkansas river, which at this point flows from east to west. The top formation is shale, with a maximum thickness of 86 ft. Immediately below comes the limestone, 60 ft. thick where it is not eroded. The limestone rests on a very hard sandstone. At the west end of the quarries, this sandstone is slightly below the river level, and it has only a very slight rise towards the east. Therefore, both the strata of limestone and shale are almost horizontal; both are composed of layers varying as a rule from four inches to a foot in thickness, although there are three layers in the limestone and two in the shale that are 30 in. thick.

The shale is frequently cut through by arroyos, or gulches—sometimes clear to the limestone level. The storm waters from the north pass over the deposit through these arroyos. They are the cause of considerable grading for roads on which to operate the well drills. The arroyos twist and turn and have smaller gulches leading into them, so that it is not always possible for us to have our rows of holes parallel. To correctly load the powder in holes spaced so irregularly and with such long slopes for toes, necessitates much study from our drill and powder foreman, A. F. Meyers. Of course, where the face happens to be straight, and there are no gulches, his task is simpler.

We do not quarry both materials in one face, but first remove the shale and then the limestone, with a steam shovel on each level. Two well drills are in use, a Keystone, electrically operated, and a gasoline traction "All Steel" Armstrong. The Armstrong drill gives us a 6½-in. hole, the Keystone a slightly smaller one. Each drill is operated by two men who work ten hours a day. Drilling speed varies from 50 to 121 ft. of hole per day in shale and from 50 to 90 ft. per day in limestone. Our best record in shale is 145 ft. in ten hours, working on holes 90 ft. deep. Under the same conditions we averaged 121 ft. daily for three days.

We cannot work out a set rule for spacing the holes, because where the gulches cut in, the line of holes may have a reverse curve. On each shot we have to study the lay of the land, slope of the toe, and the relation of cleavage to the line of the shot; and our drill holes are spaced accordingly. At a point where a high face slopes two ways, we may have to bunch several holes closely together; on straight faces at right angles to the cleavage lines, holes may be placed further apart.

Neither do we have set rules for shooting any number of rows of holes simultaneously. When shooting two rows of holes at once on a 60-ft. face of limestone, we do not always get all of the top of the shot from the back row, to the floor. Therefore, we have replaced a 70-ton shovel which had sufficient capacity for our needs, with a 105-ton shovel which can stand the heavy strain of the occasionally heavy pulls in some of our tight corners. I am informed that ours was the first shovel this large, on caterpillar treads, that was bought for a cement quarry.



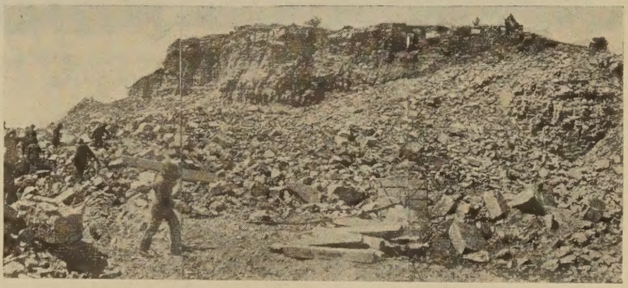
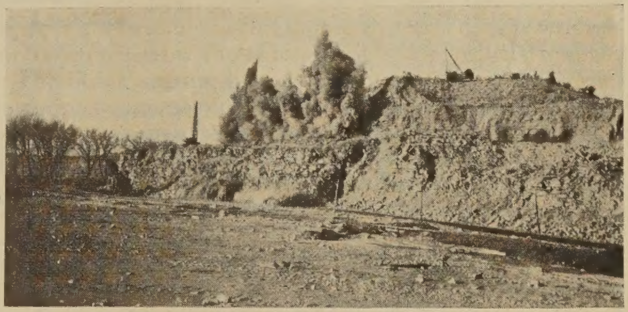


Fig. 2—The Quarry Face Before a Shot

Fig. 3—The Same Face After the Shot

The bottom twelve feet of the shale is very hard; so we load Titan "D" Dynamite in the bottom, a little higher than the hard material. On top of this, without intervening tamping, we load black blasting powder. Finely granulated shale is used as stemming. In the limestone the entire explosives charge consists of Titan "D" dynamite.

All holes are detonated with Cordeau-Bickford. At the connections between trunk and branch lines a stick of dynamite is wired to the cordeau to insure



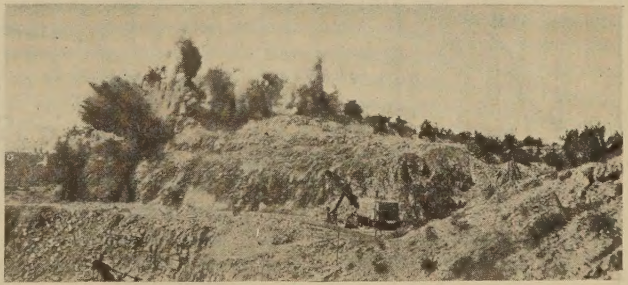


Fig. 4—A Blast in Limestone. Note the Rock Being Thrown Out at the Bottom Showing that the Toe Has Been Properly Loaded

Fig. 5—A Blast In Shale. On This Shot, 9,500 lbs. Of Titan "D" Dynamite and 8,175 lbs. of Black Powder Moved 53,200 cu. yds. or 10,700 tons of Shale

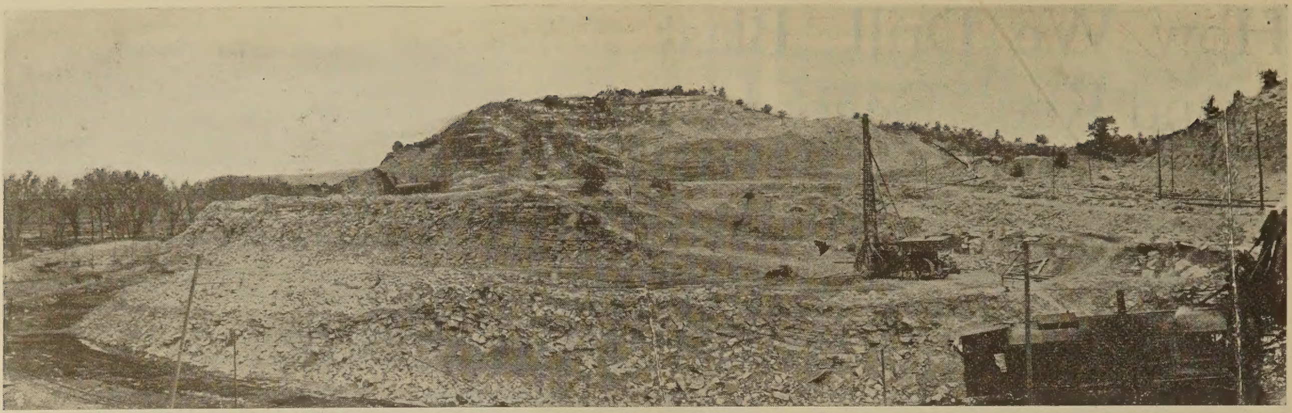


FIG. 1—THE QUARRY OF THE COLORADO PORTLAND CEMENT CO. THIS SHOWS THE TWO LEVELS ON WHICH SHALE AND LIMESTONE ARE QUARRIED. THE UPPER SHOVEL IS WORKING IN SHALE, THE LOWER ONE IN LIMESTONE

continuous detonation. When shooting more than one row of holes, there are two or more trunk lines of cordeau; so we splice headers of cordeau from one trunk line to the other. These headers leading in from both sides insure against the failure of any section of the trunk line to detonate because of a poor connection, or from any other trouble. The cordeau is detonated by electric blasting caps which are fastened to the end of each trunk line. These electric blasting caps are fired simultaneously by a blasting machine.

At present we should average from 6 to 7 tons of blasted material per pound of powder. When the quarry faces are straight and at right angles to the cleavage lines, 7½ tons of material per pound of powder is not unusual, and one of our large shots brought down 9½ tons of shale per pound of explosives. Some shots in shale when we were opening the quarry and shooting out curves and toes, which I have selected at random, show the following results:

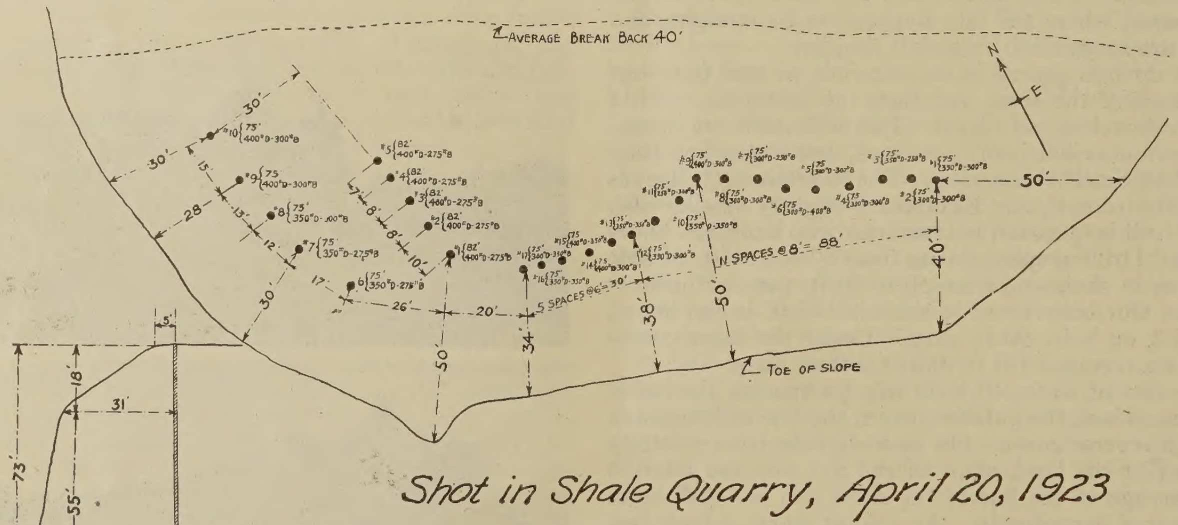
| Powder Used | Rock Blasted per Pound Powder |
|---|---|
| 5150 Lbs. Titan D | 6.200 tons |
| 7300 Lbs. Titan D | 6.669 tons |
| 4050 Lbs. Titan D | 7.498 tons |

I find the following results for shots made while opening our present limestone quarry, where it was also necessary to shoot around curves:

| Powder Used | Rock Blasted per Pound Powder |
|---|---|
| 5000 Lbs. Titan D | 6.744 tons |
| 10487 Lbs. Titan D | 5.312 tons |
| 8000 Lbs. Titan D | 4.589 tons |
| 6600 Lbs. Titan D | 4.984 tons |
| 9775 Lbs. Titan D | 5.170 tons |
| 7150 Lbs. Titan D | 5.718 tons |

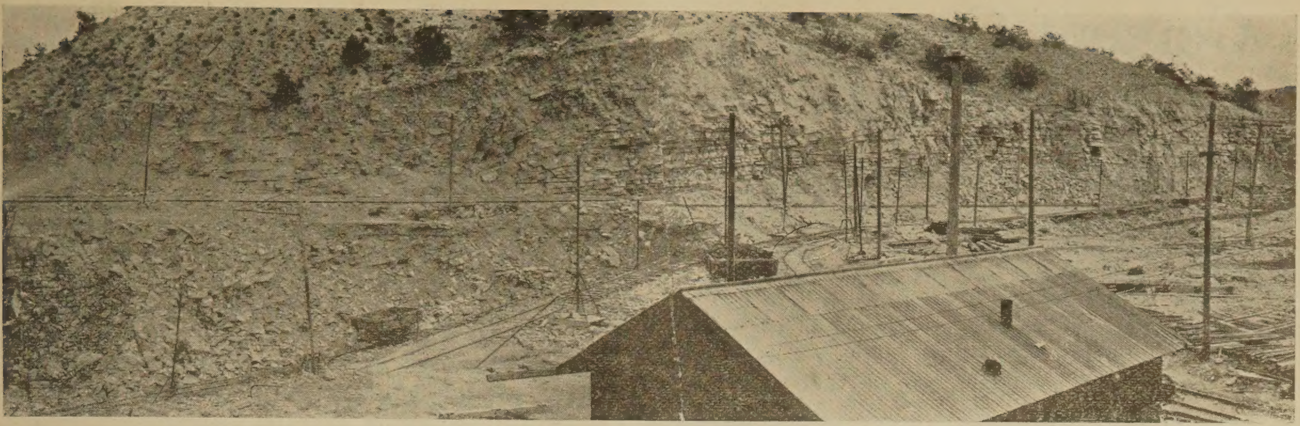
I have already referred to the importance of keeping careful and complete records. We have a drilling sheet, on which is written the information that comes to me from the foreman. On these sheets are recorded daily the time of starting and stopping the drill, the number of feet drilled, the row number, hole number, and the depth of the hole. Columns are also provided for the driller to note the time at which bailing or moving is started and stopped. Lines are provided for the hours worked per man and for the amount of explosives and blasting supplies used. The data on these blanks are tabulated in the office.

A diagram is drawn for every shot. This consists of a plan and elevation of the quarry, on which are record-

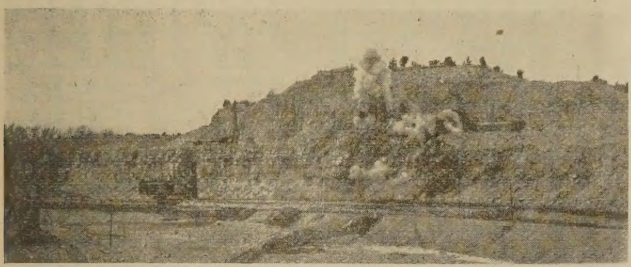


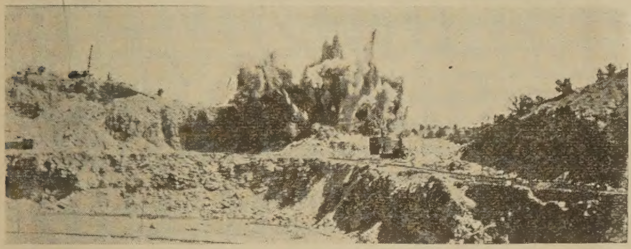
| EXPLOSIVES | USED | DUTY OF POWDER | |
|---|---|---|---|
| Powder —Titan "D" | 9500 | Yards Moved | 53200 |
| " —Black | 8175 | Tons " | 107000 |
| Cordeau—Corded | 2000 | Yards per Pound Powder | 3 010 |
| " —Plain | 400 | Tons " " " | 6 050 |
| Electric Exploders | 2 | Pounds Powder per Yard | 332 |
| | | " " " Ton | 165 |

FIG. 9—ONE OF THE DIAGRAMS WHICH ARE KEPT AS PERMANENT RECORDS. THIS IS A SAMPLE OF THE BLUE PRINTS WHICH ARE FILED AS PERMANENT RECORDS OF EACH SHOT



The Way in Which the Upper or Shale Formation is Cut by Arroyos Can Be Seen by Studying this Illustration in Conjunction with the Other





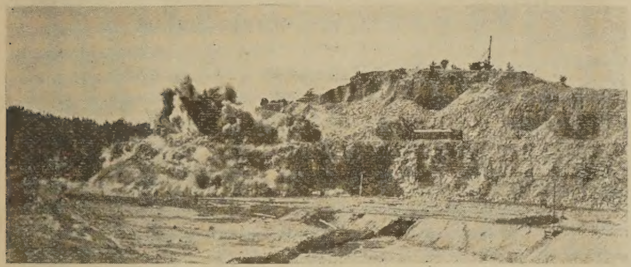


Fig. 6—A Small Shot. This Blast is in the Limestone Quarry, Which Has a Face 50 ft. High

Fig. 7—A 91-Hole Shot in a Shallow Bench of Shale in Which the Holes Were 12 ft. Deep

Fig. 8—A Very Successful Shot in Limestone. About 9,000 lbs. of Titan "D" Dynamite Were Used

ed the distance each hole is spaced from the bank and from adjoining holes; the depth of each hole; the total amount of explosive with which it was loaded; and kind of powder, cordeau and electric blasting caps used; total amount of rock moved, figured in cubic yards and tons; cubic yards and tons of rock per pound of powder and pounds of powder used per cubic yard and ton of rock. Blue prints made from these diagrams are filed in the office as permanent records of the shot and are very useful for future reference and comparison. A sample diagram is shown in Fig 9.

I take photographs of every shot. In those which accompany this article you can see that in each instance the bottom or "toe" is being well thrown out—a guarantee of a successful shot. "Before and after" photographs, which are kept in our files, give an accurate history of the quarry. A careful study of these photographs generally enables us to determine the cause of any peculiar results in the displacement of material. They are valuable records.

# Quick-Setting Lime Blocks Developed by Bureau of Standards

A cast lime building tile for use in making partitions has been developed at the Bureau of Standards by the Fellow of the National Lime Association. The material of which it is made sets so that it can be removed from the mold at the end of ten minutes. After twenty minutes it can be handled, and after seven days it has a compressive strength of 100 lbs. per sq. in. It can be sawed, and nails can be driven into it.

The material is composed of five parts by volume of ground quick lime, ten of hydrate or slaked lime, and one of wood fiber. It is found to cure best when outdoors exposed to the weather. The new tile is about 20% heavier than gypsum tile of the same size, and experiments are being conducted to see if the core volume can be increased without too great a sacrifice of strength.

The quick setting lime of which the tile is made was developed several months ago by the Bureau of Standards, and can also be used for other purposes. Difficulty is found in shipping it, however.

# Cement Sacks

The question as to why the jute bag has not been able to supply the wants and requirements of the cement manufacturers has brought out the information that there is considerable variance in opinions on the subject. There appear to be a good many different opinions on the question of osnaburg—cotton cloth, vs. jute. It is quite generally believed that the cotton cloth sack and the paper sack each has its own particular adaptation in connection with the cement industry, and that the use of jute in the place of cotton cloth depends to a certain extent upon the difference in cost of production of the materials.

The difference in climatic conditions may have some bearing on this variance in opinion, as for instance, in California, practically all the cement is shipped in jute, whereas it is believed by cement manufacturers in the East that osnaburg is the best material.

# Cement Output in August 1923

The statistics shown in the following tables issued by the Department of the Interior, and prepared under the direction of Ernest F. Burchard, of the Geological Survey, are based mainly on reports of producers of portand cement but in part on estimates. The estimates for August, 1923, were made necessary by the lack of returns from four mills. Production and shipments in August are greater than in any month thus far recorded, and stocks are higher than in August, 1922.

Production, Shipments, and Stocks of Finished Portland Cement, by Districts in August, 1922 and 1923, and Stocks in July, 1923, in Barrels

| Commercial District | Production, August | | Shipments, August | | Stocks at end of August | | Stocks at end of July, |
|---|---|---|---|---|---|---|---|
| | 1922 | 1923 | 1922 | 1923 | 1922(a) | 1923 | 1923(a) |
| Eastern Pa., N.J. & Md. . . | 2,997,000 | 3,388,000 | 3,994,000 | 4,084,000 | 1,460,000 | 2,118,000 | 2,814,000 |
| New York | 596,000 | 720,000 | 811,000 | 823,000 | 518,000 | 552,000 | 655,000 |
| Ohio, Western Pa. & W. Va. . . | 1,156,000 | 1,295,000 | 1,491,000 | 1,606,000 | 679,000 | 451,000 | 762,000 |
| Mich. . . . . | 584,000 | 646,000 | 863,000 | 788,000 | 165,000 | 178,000 | 320,000 |
| Ill. Ind. & Ky. . . | 1,979,000 | 2,008,000 | 2,204,000 | 2,080,000 | 696,000 | 425,000 | 497,000 |
| Va. Tenn. Ala. & Ga. . . . . . | 533,000 | 681,000 | 546,000 | 684,000 | 307,000 | 231,000 | 234,000 |
| Eastern Mo., Ia., & Minn. | 1,164,000 | 1,268,000 | 1,530,000 | 1,620,000 | 485,000 | 662,000 | 1,014,000 |
| Western Mo. Neb. Kan. & Okla. . . . | 874,000 | 1,026,000 | 1,019,000 | 1,254,000 | 696,000 | 645,000 | 873,000 |
| Texas. . . . | 364,000 | 385,000 | 420,000 | 413,000 | 117,000 | 159,000 | 187,000 |
| Colo. & Utah. . . . | 279,000 | 231,000 | 279,000 | 275,000 | 175,000 | 115,000 | 159,000 |
| Calif. . . . . | 799,000 | 1,009,000 | 818,000 | 958,000 | 216,000 | 220,000 | 169,00 |
| Ore., Wash. & Mont. . . | 339,000 | 310,000 | 386,000 | 386,000 | 232,000 | 321,000 | 397,000 |
| | 11,664,000 | 12,967,000 | 14,361,000 | 14,971,000 | 5,746,000 | 6,077,000 | 8,081,000 |

(a) Revised.

Stocks of clinker, or unground cement, at the mills at the end of August, 1923, amounted to about 3,727,000 barrels compared with 3,865,000 barrels at the beginning of the month.

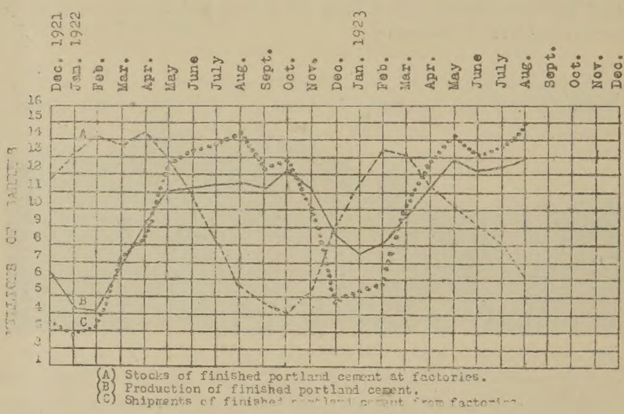
Production, Shipments, and Stocks of Finished Portland Cement by Months in 1922 and 1923, in Barrels

| Month | Production | | Shipments | | Stocks at end of month | |
|---|---|---|---|---|---|---|
| | 1922 | 1923 | 1922 | 1923 | 1922a | 1923 |
| January | (a)4,291,000 | 7,704,000 | (a)2,931,000 | 5,419,000 | 13,316,000 | (a)11,470,000 |
| February | 4,278.000 | 8,085,000 | 3,285,000 | 5,963,000 | 14,142,000 | (a)13,502,000 |
| March | 6,685,000 | 9,880,000 | 7,002,000 | 10,326,000 | 13,848,000 | (a)13,045,000 |
| 1st quar. | 15,254,000 | 25,669,000 | 13,218,000 | 21,708,000 | . . . . . . . . . | . . . . . . . . . . . . |
| April | 9,243,000 | 11,359,000 | 8,592,000 | 12,954,000 | 14,470,000 | (a)11.463,000 |
| May | 11,176,000 | 12,910,000 | 12,749,000 | 14,257,000 | 12,893,000 | (a)10,144,000 |
| June | 11,245,000 | 12,382,000 | 13,470,000 | 13,307,000 | 10,718,000 | (a) 9,168,000 |
| 2nd quar. | 31,664,000 | 36,651,000 | 34,811,000 | 40,518,000 | . . . . . . . . . | . . . . . . . . . . . . |
| July | 11,557,000 | 12,620,000 | 13,850,000 | 13,712,000 | 8,433,000 | (a) 8,081,000 |
| August | 11,664,000 | 12,967,000 | 14,361,000 | 14,971,000 | 5,746,000 | 6,077,000 |
| September | 11,424,000 | . . . . . . . . . | 12,444,000 | . . . . . . . . . | 4,724,000 | . . . . . . . . . . . . |
| 3rd quar. | 34,645,000 | . . . . . . . . . | 40,655,000 | . . . . . . . . . | . . . . . . . . . | . . . . . . . . . . . . |
| October | 12,287,000 | . . . . . . . . . | 12,854,000 | . . . . . . . . . | 4,149,000 | . . . . . . . . . . . . |
| November | 11,349,000 | . . . . . . . . . | 10,167,000 | . . . . . . . . . | 5,320,000 | . . . . . . . . . . . . |
| December | 8,671,000 | . . . . . . . . . | 4,858,000 | . . . . . . . . . | 9,267,238 | . . . . . . . . . . . . |
| 4th quar. | 32,307,000 | . . . . . . . . . | 27,879,000 | . . . . . . . . . | . . . . . . . . . | . . . . . . . . . . . . |
| Preliminary total. . | 113,870,000 | . . . . . . . . . | 116,563,000 | . . . . . . . . . | . . . . . . . . . | . . . . . . . . . . . . |
| Amount of under estimate | 919,984 | . . . . . . . . . | 1,138,216 | . . . . . . . . . | . . . . . . . . . | . . . . . . . . . . . . |
| Final total | 114,789,984 | . . . . . . . . . | 117,701,216 | . . . . . . . . . | . . . . . . . . . | . . . . . . . . . . . . |

(a)Revised.

The Bureau of Foreign and Domestic Commerce, of the Department of Commerce, reports that the imports of hydraulic cement in July, 1923, amounted to 286,106 barrels, valued at $555,166. The total imports in 1922 amounted to 323,823 barrels, valued at $628,846. The imports in July were from Norway, 118,231 barrels; England, 52,765 barrels; Sweden, 44,764 barrels; Germany, 29,841 barrels; Quebec Province, Canada, 24,521 barrels; Denmark, 13,535 barrels; British Columbia, 1,007 barrels; other countries, 1,442 barrels. The imports were received in the following districts: Los Angeles, 84,756 barrels; New Orleans, 41,798 barrels; Oregon, 39,451 barrels; San Francisco, 25,837 barrels; Hawaii, 15,626 barrels; Vermont, 15,245 barrels; Porto Rico, 13,535 barrels; North Carolina, 12,511 barrels; South Carolina 11,033 barrels; Florida, 10,449 barrels; other districts, 15,865 barrels.

Monthly Fluctuations in Production, Shipments, and Stocks of Finished Portland Cement



The exports of hydraulic cement in July, 1923, were 82,774 barrels, valued at $230,698, of which was sent to Cuba, 39,467 barrels; to the other West Indies, 5,019 barrels; South America, 17,573 barrels; Central America, 10,475 barrels; Mexico, 7,999 barrels; Canada, 1,508 barrels; and to other countries, 733 barrels

The statistics of imports and exports of hydraulic cement in August, 1923, are not available.

Imports and Exports of Hydraulic Cement, by Months, in 1922 and 1923, in Barrels(a)

| Month | Imports | | Exports | |
|---|---|---|---|---|
| | 1922 | 1923 | 1922 | 1923 |
| January. . . . . . . . . . . . . . . . . . . . . . . . | 17,039 | 71,686 | 70,725 | 73,169 |
| February. . . . . . . . . . . . . . . . . . . . . . | 5,157 | 20,529 | 82,421 | 88,624 |
| March. . . . . . . . . . . . . . . . . . . . . . . . | 1,597 | 66,521 | 103,556 | 98,861 |
| April. . . . . . . . . . . . . . . . . . . . . . . . . | 10,855 | 76,416 | 75,412 | 85,662 |
| May. . . . . . . . . . . . . . . . . . . . . . . . . . | 2,524 | 88,480 | 100,068 | 103,634 |
| June. . . . . . . . . . . . . . . . . . . . . . . . . | 14,198 | 111,559 | 96,263 | 77,203 |
| July. . . . . . . . . . . . . . . . . . . . . . . . . . | 957 | 286,106 | 119,491 | 82,774 |
| August. . . . . . . . . . . . . . . . . . . . . . . | 56,757 | (b) | 105,156 | (b) |
| September. . . . . . . . . . . . . . . . . . . . | c42,641 | . . . . . | 78,615 | . . . . . . |
| October. . . . . . . . . . . . . . . . . . . . . . | d65,228 | . . . . . . | 80,402 | . . . . . . |
| November. . . . . . . . . . . . . . . . . . . . | 61,010 | . . . . . . | 108,798 | . . . . . . |
| December. . . . . . . . . . . . . . . . . . . . | 45,860 | . . . . . . | 106,938 | . . . . . . |
| | 323,823 | . . . . . . | 1,127,845 | . . . . . . |

(a)Compiled from records of the Bureau of Foreign and Domestic Commerce. (b)Imports and exports in August, 1923 not available. (c)Covers period Sept. 1-21. Imports Sept. 22-30 included with Oct. (d)Includes imports period Sept. 22-30.

R. A. Smith, Michigan state geologist, who has recently made investigations at Alpena, Mich. has hopes that state-owned cement and fertilizer plants will be established this fall. It was found that both Alpena and Charlevoix districts were abundantly supplied with clay and shale resources, and that to develop them would end the importation of this material which amounts to over a million barrels per year.

A 50% increase recently in the price of cement, which has already been contracted for by the state, has aroused Governor Groesbeck to push the erection of state-owned plants, according to reports from Lansing.

# Fatal Accidents During the First Half of 1923

From *Accident Prevention Bulletin* published by the Portland Cement Association.

During the first half of 1923 there were 30 fatal accidents at 23 plants. Two plants had two fatalities each, one had three, one had four and nineteen had one each. The months carry these quotas:

| | |
|---|---|
| January | 10 |
| February | 1 |
| March | 2 |
| April | 6 |
| May | 5 |
| June | 6 |
| Total | 30 |

The 10 accidents in the first month of the year created an enormous handicap on the race to better last year's record. Four of these fatalities were caused by a single accident—coal dust explosion. In no other instance has there been more that one fatality from a single accident.

With even a normal run of fatalities during the last half of the year we have a chance of making an improvement on the 1922 record and if every man does his utmost—which he should from a self preservation standpoint—it is a certainty that a reduction can be made.

In order that every cement plant employe may familiarize himself with the causes of the 30 fatalities we have endeavored to give a complete description of each accident in the following list. Get the information to your men so that they will realize that only by working safely and sanely can they escape the misfortunes which some of their friends met with.

No. 1. As near as can be ascertained the man entered a large rock bin to dig down rock while rock was being drawn out through hopper. A slide of rock covered the man. He was alone in the bin and the accident was not discovered until his feet protruded through the hopper opening.

No. 2. Injured man was on loading track with steam shovel between him and quarry face when a small rock became dislodged about 100 feet from the quarry floor. The rock glanced off the steam shovel roof and struck him on the head, fracturing skull.

Nos. 3-6. The coal mill had shut down for repair. During the shut down the coal drier undoubtedly became overheated and immediately when the machinery was started a very violent explosion took place. Four men were killed.

No. 7. It seems that the man must have lost balance while standing on ladder and in falling to ground struck head on pipe.

No. 8. While shoveling in raw mixture the material slid and covered the man.

No. 9. Injured was installing grease cup on conveyor bearing. Foot was caught between floor and sprocket. He died in the hospital seven days later.

No. 10. Walking across quarry slipped and injured leg severely. The man's physical condition was so poor that it became necessary to amputate the leg. The man died after having been in the hospital several weeks.

No. 11. Drive belt to belt conveyor was off pulley and hung on line shaft. The man went up on line shaft pier for the purpose of hanging belt on bearing to save the belt from being injured by the friction of the shaft. As he lifted the belt it became caught on the shaft and knocked him to the floor about seven feet.

No. 12. Brakeman in quarry fell from car and was run over.

No. 13. While working in coal car the man was helping the crane operator to release the crane bucket which had become caught on a brace rod in car. As the bucket was released it swung and threw the man to the ground about 12 feet.

No. 14. The man was using a portable kerosene burner. There were no witnesses to the accident but it is thought that on account of the confined space in which the man was working he must have used the torch too close to the kerosene tank. The tank had exploded and a part of it struck the man in the forehead.

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and struck

No. 26. There were no witnesses to this accident. The man apparently got caught in the McCaslin rock conveyor and was pulled into the angle iron frame just where conveyor leaves the horizontal track.

No. 27. Rocks from blast in quarry struck man on head. The man neglected to get under cover although he had several warnings.

No. 28. Buried by rock slide in storage tank.

No. 29. Buried by rock slide in stone storage—not the same accident as the one above.

No. 30. Buried by slide in coal bin.

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# Fire at Phoenix Co.'s Nazareth Plant

The Phoenix Portland Cement Co., Nazareth, Pa., suffered a serious fire loss on the night of September 14.

The fire started in one of the stockhouses at the plant and made rapid headway, completely destroying the bag house, packing room and three stockhouses, as well as the finishing mill building and part of the contents of the finishing mill. The loss is estimated at approximately $350,000, covered by insurance. The origin of the fire is as yet unknown.

Plans are already under way and contracts will be let within the next few days to rebuild everything destroyed with modern fireproof construction. The rebuilding will require approximately five months and when completed, the entire plant will be fireproof throughout. The rest of the mill was not damaged as it is of fireproof construction and the kilns were started two days after the fire. Arrangements have been made by the company to have clinker ground at neighboring plants, and to procure sufficient cement to take care of all of its customers without interruption.

Freight rates on cement from Independence, Kansas, to Kansas City, Missouri—Kansas, are unreasonable and prejudicial against the Atlas Portland Cement Co. to the advantage of competing mills at Cement City, Mo., and Bonner Springs and Sunflower, Kansas, a complaint filed with the Interstate Commerce Commission by the Kansas company asserts. The Commission is asked to require the establishment of a reasonable rate. The cement company represents that it is now paying a rate of 11c per 100 lbs. from Independence to the Kansas City switching district as compared to competitors' rates from Cement City of 4.5c, and from Bonner Springs and Sunflower of 6.5c.

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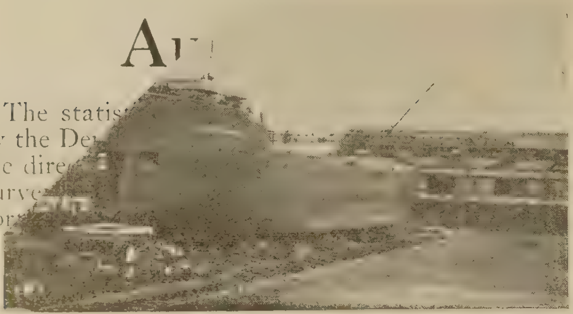

Fig. 1 (Upper Left)—The New Steamer John W. Boardman Awaiting the Arrival of the Launching Party

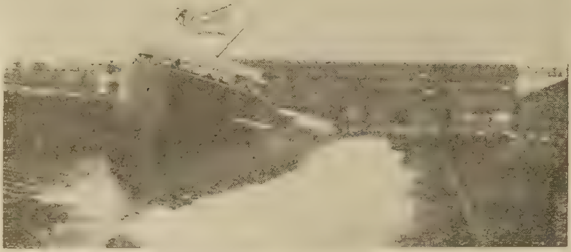

Fig. 2 (Lower Left)—The Cement Carrier Taking the Water

Fig. 3 (Right)—Ready to be Towed out of the Slip to the Dock Where the Boilers had Already Been Swung for Lowering into Place

# The Boardman, a Unique Cement Carrier

The John W. Boardman, a new cement carrying freighter for the Huron Portland Cement Co. which was launched at the Toledo Shipyards September 6 will soon be in service transporting bulk cement from the company's plant to packing plants at Detroit, Toledo, Cleveland, Milwaukee and Duluth. The new boat is unique in a number of features, the outgrowth of experience in shipping bulk cement in the steamer Samuel H. Mitchell, which the company purchased and put in service about four years ago.

The Boardman which was built at a cost of about $1,000,000 is 400 ft. long and has a 55-ft. beam, with a capacity of approximately 7,500 tons of cement. The special elevators and conveyors which form a part of the ship's equipment, together with elevating and conveying equipment at each dock of call will permit loading at the rate of 8,000 sacks of cement per hour and unloading at the rate of 6,000 sacks an hour.

John W. Boardman, vice president of the Huron and Wyandotte Portland Cement Companies, was active in the design and construction of the new boat that bears his name. Profiting by the experience with the Mitchell, studies were made by the company's engineers working with Professor Sadler of the University of Michigan with the result that the danger from shifting of the cargo of bulk cement has been overcome by specially constructed compartments.

A party of about 200 invited guests including builders, contractors and officials from various Michigan cities together with their wives and friends made up the launching party which left Detroit on the steamer Owana, chartered by the cement company for the day to make the trip to Toledo and return. An early morning fog delayed the arrival of the Owana at the Detroit dock but the party reached the Toledo shipyard in time to see the Boardman take the water. Lunch was served on board the Owana on the down trip and dinner on the return to Detroit.

Miss Mary Crapo, daughter of S. T. Crapo, secretary-treasurer of the cement company, christened the new ship. A royal welcome will be given the new flagship upon her first visit to Alpena according to plans of Alpena officials. It is planned to pilot the Boardman into the river to the post office dock.

Work on the finishing of the boat is progressing rapidly and it is expected the first trip will be made late in October.

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## Michigan Options Land

The State of Michigan has optioned 340 acres of limestone land in Cheboygan county, near the center of the county and directly south of Cheboygan.

The option was secured at the instance of Attorney General A. B. Dougherty, and runs until January 17, 1924. The land is located on the Michigan Central R. R. and is recommended as a practicable location for the proposed state cement plant.

The State of Michigan has entered the lists with Henry Ford, J. B. Ford, U. S. Steel Corporation and Kelley Island Lime and Transport Co. for the acquisition of limestone land in Alpena county.

Attorney General Dougherty approached owners of certain desirable stone land in the vicinity of Alpena it has been reported, and found that options had been given on much of the land desired. That the state would watch for the expiration of these options, was indicated.

The idea that the state was only considering state land for the location of the proposed state-owned cement plant has been considerably modified. It is realized that the price of the land will be small in comparison with the cost of the plant, and the state is not confining itself to state land.

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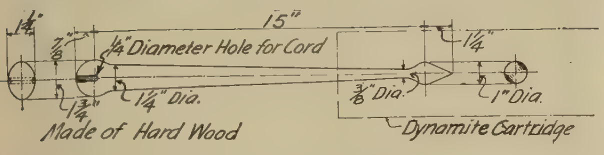
Potash production of the French Alsatian mines shows a steady increase during the last four years: 1919—592,365 tons, 1920—1,222,370 tons, 1921—900,134 tons, 1922—1,326,727 tons.

# A Spear for Lowering Dynamite

By J. Barab

The question is often asked whether it is safe to drop cartridges of dynamite down deep well-drill holes. The usual reply is that practically the universal method is to drop the cartridges into the hole. Frankly, one cannot say this practice is safe. On the other hand, the accidents that can be directly attributed to this cause are indeed rare. Nevertheless, the handling of explosives is always attended by more or less danger and the best practice should include all possible safety precautions. The spear described in this article is a simple and inexpensive device for lowering dynamite cartridges, which should interest all who prefer not to drop these cartridges down the hole.



Spear for Lowering Dynamite Cartridges

Quite often the well-drill holes are ragged and irregular. In such cases, when large dynamite cartridges are dropped into the hole they may get stuck before reaching the bottom. More or less trouble is encountered in removing the obstruction. By the use of this spear, the cartridges can be carefully and slowly lowered so that they easily pass the irregular places in the hole, which avoids this difficulty.

Another question that often arises when loading deep holes is whether the dynamite reaches the bottom. By indicating the depth of the hole on the rope attached to the spear, by a mark on the rope, it can readily be determined whether each cartridge of dynamite reaches the bottom.

The spear, as shown in the diagram, is a piece of hard wood about 15 in. long, with the spear head at one end and a hole for a rope at the other. To lower a cartridge of dynamite into the hole, the spear head is inserted into the end of the cartridge, which is then carefully lowered by means of the rope attached to the other end. When the cartridge has reached its destination in the hole, a slight amount of slack is allowed and the rope is given a sudden jerk; this withdraws the spear from the cartridge without appreciably raising the cartridge. The spear is then pulled out of the hole and the operation repeated with the succeeding cartridges.—*Explosives Engineer*

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It is planned to continue the general study of rock quarrying for lime manufacture at the Non-Metallic Minerals Experiment Station recently established by the Bureau of Mines at New Brunswick, N. J. Special studies will probably be made regarding the utilization of waste stone at lime plants.

The proposed program of operation also includes experimental work in the utilization of various non-metallic minerals as inert fillers.

# Aluminous Refractories

Bauxite refractories or high-alumina refractories are finding wider markets, and some new producers entered this field in 1922. The Geological Survey has not been able to interest the producers of refractory aluminous products sufficiently to obtain accurate and complete statistics of the industry. That this industry is expanding is shown by the growing demand for bauxite and high-alumina clays by ceramists all over the country. In 1922 the makers of refractory brick took 230 tons of bauxite and 36,990 tons of high-alumina clay. Kyanite, sillimanite and andalusite are mentioned as possible new sources of aluminous raw materials. That sillimanite itself may be used as a refractory has been indicated. Considerable discussion of aluminous abrasives took place at the twenty-fifth meeting of the American Ceramic Society recently held in Cleveland.

Aluminous refractory brick are sold in various shapes the alumina content of which ranges from 50 to 76%.

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# Bauxite and Aluminum Production

The bauxite industry of the United States showed marked improvement in 1922 over the conditions during 1921, owing to the increased demand for the products made from bauxite, particularly aluminum and aluminous abrasives according to the U. S. Geological Survey. The domestic production of bauxite increased 122% as compared with 1921. In the Arkansas field the increase was approximately 114%, but there is still opportunity for much larger production from this field. In the eastern field the increase was 191%, showing the revival of the aluminum salts industry, as most of the bauxite from this field is used for the manufacture of alum and aluminum sulfate.

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# Raising the Honor Flag at Canada Plant

To have worked 800,000 man-hours without a lost-time accident, is something the Canada Cement Company's No. 1 plant at Montreal has good reason to be proud of. Not since back in the month of February have any of their employes lost time due to accidents, according to the *Accident Prevention Bulletin.*

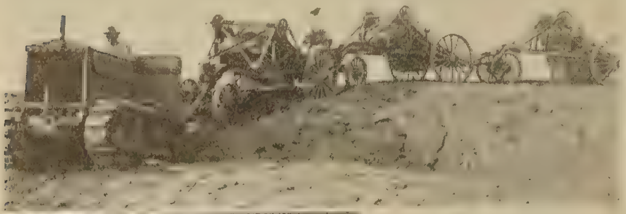
On account of having had no lost-time accidents during three successive months, the plant was awarded the Canada Cement Company's "Honor Flag."

On Wednesday, June 13, the Honor Flag was run up on the flag-pole at Plant No. 1 in the presence of the Plant officials, Plant Central and Workmen's Committees and a delegation from the head office. A. G. Beck, plant superintendent, after a few introductory remarks of congratulation, introduced the speakers. A. C. Tagge reviewed the evolution of accident prevention in our industry and described how, from regarding accidents as an unfortunate necessity, he had come to regard immunity from accidents as an ideal which, if not absolutely attainable, might be approached very nearly by continuous educational effort and enthusiasm, and he looked for the day when he might unveil at Plant No. 1 the trophy awarded by the Portland Cement Association.

# Caterpillar Tractors Around Plant and Quarry

By Russell E. Van Arsdel
Holt Mfg. Co., Peoria, Ill.

The most important use to which the caterpillar tractor is put around the property of a cement company is that of hauling, although inquiry and investigation bring out the fact that the tractor is put to many diversified uses by cement manufacturers in addition to its qualification for road building.



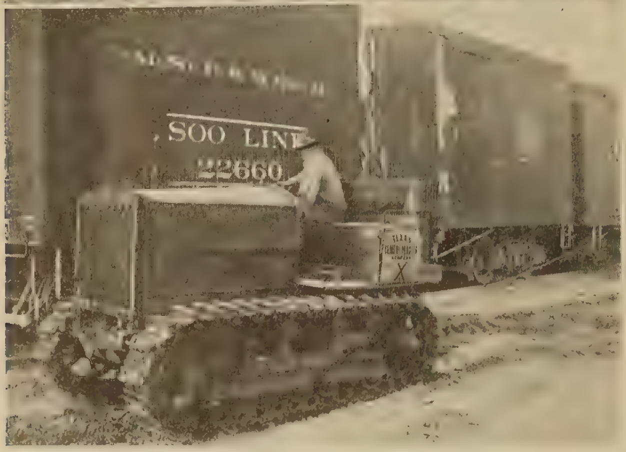


Fig. 1—Hauling Dirt with Caterpillar in Stripping Operations. Texas Cement Plaster Co.

Fig. 2—Switching Box Cars with Caterpillar Tractor at Texas Company's Plant

Figs. 1 and 2 illustrate some of the varied uses to which the Texas Cement Plaster Co. puts its 5-ton caterpillar, which include dirt moving, hauling, stump pulling, basement excavating, tank dam building, road grading around the plant and switching purposes. This particular company has moved an average of 375 cu. yds. of dirt for 150 yds. in a 10-hr. day in the stripping of gypsite deposits. When necessary, the caterpillar was used as a switch engine to bring cars from the main track, having pulled 35 empty cars at one time. Nine loaded cars with 279 tons of plaster and a few empties were pulled in one operation. During the rush season when the company was unable to secure a switch engine as desired, the tractor was used very extensively for switching in the yards.

The Michigan Limestone and Chemical Co. uses a 5-ton caterpillar to do general hauling of equipment and materials about its plant and quarry at Rogers, Mich. During the winter months, the caterpillar is also used as a snow plow to keep the roads open between the plant and Rogers, a distance of two miles, and has even been utilized to remove snow from the village streets.

Figs. 3, 4 and 5 show the tractor in action around the Michigan plant.

Figs. 3, 4 and 5—Making Use of Caterpillar Tractor Around Plant of Michigan Limestone and Chemical Co. Fig. 5 Shows the Tractor Operating as a Snow Plow to Clear the Roadway after a Heavy Snow Fall

The Lehigh Portland Cement Co. uses caterpillars to haul dirt in dump wagons from the steam shovel in stripping the overburden from the cement rock at one of its large quarries.

The American Cement Plaster Co. at Acme, Tex., has two 5-ton caterpillar tractors for the same general uses.

Other uses for these machines include the preparation of road beds, dirt moving, hauling and grading. The easy traction of this crawler type, its flexibility, rugged construction and sturdiness, make it an ideal agency of motion, both from the standpoint of power, and from the viewpoint of economy.

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Beginning early last fall, the Tidewater Portland Cement Co., began work on the installation of a powerful stone crusher which was completed recently and is now in operation. Its installation necessitated the erection of a suitable building together with the necessary dryers, conveyors and car tracks leading to it.

This mammoth crusher has a capacity of 200 tons per hour. It has displaced about 30 men in the quarries, doing away with all night quarrying, and as the loading is now all done by steam shovels, much of the "mud-capping" is obviated, besides insuring a surplus of raw material at all times so as not to interfere with plant operations.

There is more stone in sight to-day than there was ten years ago. The quarry has a working breast over 100 ft. deep and 1500 ft. long. The company is running to capacity.

# Progress of South Dakota Plant

Work in connection with the plant for the state of South Dakota is progressing very satisfactorily after being somewhat delayed during the summer season on account of an unusual amount of rain. The reinforced concrete foundation for the raw material storage building 80 ft. x 408 ft. is completed, and the steel for the superstructure is on the ground. In connection with the bag cleaning and storage building, the basement is fully completed and the reinforced concrete main floor and roof are constructed. The office, laboratory and locker room building is practically completed, including interior finish and tile roofing. The foundation mat for the 100,000-bbl. finished storage building, all of the conveyor gallerys and the main floor mat, all of reinforced concrete, are completed and forms placed for the starting of the storage silos. The shop and warehouse building is practically completed. The excavation for foundation work and a portion of the reinforced concrete foundation for the main mill building including machinery settings is in rapid progress, a considerable portion of the concrete having been poured.

Contracts for practically all of the buildings, with the exception of the coal mill building and the crushing plant have been let. The foundation for the 10-ft. x 207½-ft. reinforced concrete chimney is in place and work is ready to start on the pouring of the balance of the chimney. Some of the machinery has arrived, and a considerable portion of the shipments on the larger machinery was expected the latter part of September. The officials of the State Cement Commission expect to have the raw material storage building enclosed and the electric traveling crane in place in this building, also to have the shop and warehouse building completed so as to be in position to work continually through at least a greater portion of the winter.

# Cement Quiz in Michigan

The federal action against an alleged organization of cement manufacturers in the Middle West section started in Lansing early in September is considered as having a direct bearing on the state investigation of alleged cement price fixing, according to reports from Lansing.

In August, the Michigan State Administrative Board ordered an investigation to determine whether or not cement producers in the state have combined to manipulate prices, its action having followed a report from the Michigan State Highway Department that cement for highway work was not obtainable except at what was considered exorbitant prices. A one-man grand jury probe of conditions in the cement market is being conducted by Judge Leland W. Carr, Ingham county district judge.

State officials have expressed hope that the case will be conducted without delay and it was reported that the cement manufacturers were ready for an immediate hearing after having asked a slight delay to enable them to prepare their side of the question. What was considered a point in favor of the state was scored when Judge Carr ordered the manufacturers to bring their office records before him. Records from various cement companies' offices in the state were brought into court. Officials and field men of every cement company doing business in the state were summoned to appear before Judge Carr. The probe is being held behind locked doors and while Assistant Attorney General O. L. Smith in charge of the case for the state estimated that it would be several weeks before the inquiry would be ended. It was apparent that the state was satisfied with the progress being made.

It is understood that the state investigation includes a number of Michigan concerns, not mentioned by the federal action, and that no indictments can be returned until the close of Judge Carr's investigation.

The federal action is for violation of the Sherman anti-trust law. Particulars of the case have been mailed by the U. S. District Attorney at Chicago, to State Attorney General Andrew B. Dougherty. The information furnished by the federal attorney has been turned over to the assistant attorney general for possible use in the state quiz.

The Lansing report names the following Michigan companies as implicated in the federal suit: the Alpha Portland Cement Co., Bellevue; the Aetna Portland Cement Co., Fenton; Huron Portland Cement Co., Alpena; Michigan Portland Cement Co., Chelsea; Newaygo Portland Cement Co., Newaygo; Peerless Portland Cement Co., Union City; Peninsular Portland Cement Co., Cement City; and Wyandotte Portland Cement Co., Wyandotte. Other cement companies throughout the Middle West are included in the federal action.

# Cement Label Identified

According to information received from Percy S. Barber, Sansedis, Pontshill, near Ross-on-Wye, England, cement label No. 288 representing the "Premier" Brand as reproduced in Part V of "Cement Labels I Have Met" in the June issue of CONCRETE, was registered in 1907 at which time Mr. Barber was chief chemist for the company. The cement passed the British Standard Specification in every respect.

What was considered the most interesting feature regarding this cement was the fact that it was made from "Jurassic" rocks, the only portland cement in the British Isles to be made from such material. In England, the chief sources of raw material are "cretaceous", "lias" and "carboniferous" rocks.

## Trade Publications

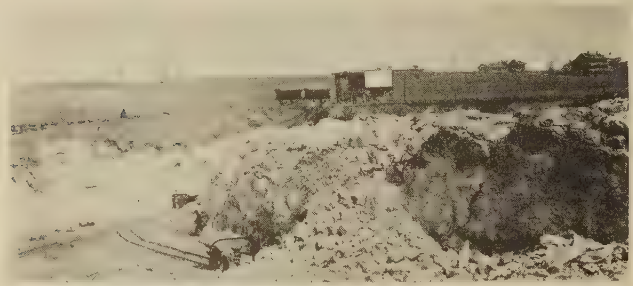
*Zero or One and One-Half Which?* is the title of a booklet published by Eastman & Co., Chicago. 4 in. x 7½ in. 12 pages. paper cover, descriptive of Graver water softening devices. This booklet has been prepared to advise, disinterestedly, power plant owners and operators regarding the merits of two water softening methods in use today and to substantiate the claim that for the steam plant, the Graver hot process softener is the only choice. The word "disinterestedly" is used advisedly as Graver Corporation manufactures both types of water softeners discussed and can therefore recommend the softener best suited for each installation.

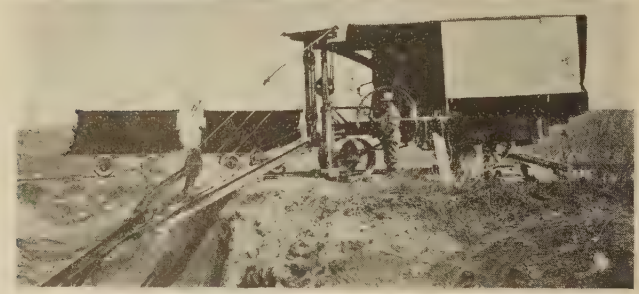
*Gayco Centrifugal Air-Separator, Bulletin D.* An 8-page bulletin with paper covers issued by Rubert M. Gay Co., New York city, describes and illustrates the Gayco air-separator and points out that although the Gayco separator is called an air-separator to distinguish it from steam separators, it is not an air separator as the term is commonly used. The air circulating within the machine acts only as a carrying or supporting fluid for the particles of solid material. The separation is effected by centrifugal force created by means independent of the action of the lifting or circulating fan and this centrifugal method of sizing pulverized materials is an exclusive feature of the Gayco separator.

A graphic flow sheet is included which illustrates the simplicity of the up-to-date fine grinding plant and represents what is recommended as the best modern practice.

# Overburden Economically Stripped with Excavator

In most of the quarries of cement and lime in the Middle West the rock stratification is horizontal and when the surface of the rock is uncovered it is smooth and level. For stripping operations in such a quarry an excavator equipped with a flat bottom skimmer bucket can be used to advantage. Other quarries generally in the eastern part of the United States, present stripping problems which are more difficult to handle, especially where the rock stratification lies on an angle and where the surface of the rock when uncovered is so rough as to make it impossible to move a steam shovel or excavator about.





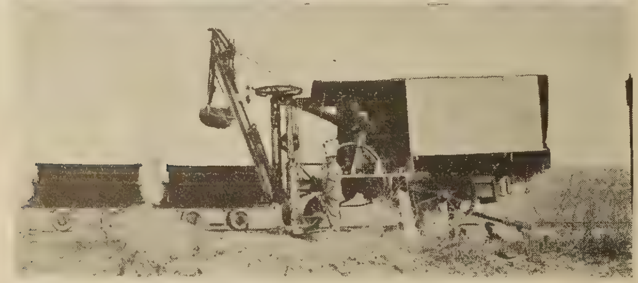


Fig. 1—Quarry of Palmer Lime and Cement Co. with Excavator Stripping Overburden

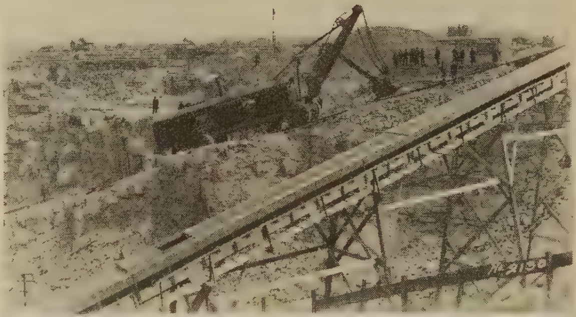
Figs. 2-3—Views Showing the Operation of the Excavator

One possible device is a machine manufactured by the Keystone Driller Co., that will move on the natural ground level, where it is comparatively smooth and regular and which will reach down for the material in the manner of the positively controlled pull-stroke ditching bucket. The accompanying illustrations show the excavator in use at the quarry of the Palmer Lime and Cement Co., York, Pa., where it is being used with success.

The excavator is operated by a 25 H. P. electric motor and it is claimed that the current used costs about $3.00 for a 10 hour day. The depth of the cut made with the dipper bucket varies from 4 ft. to 8 ft. and with the dipper scoop, from 8 ft. to 16 ft. The bucket, it is claimed, can be operated in depressions and crevices where a clamshell bucket could not enter. Since the bucket is positively controlled the digging and dumping can both be done more accurately than would be possible with either a drag scraper or a clamshell bucket. Two men are all that are required to operate the machine. The capacity of the machine is from 300 to 350 cubic yards per day. One factor that has to be taken into consideration on a large job is the necessity of having a long drag cable to allow moving the electric shovel to all sections of the quarry.

# Traction Wheel Mounting for Railroad Shovels

Traction wheel mountings for one of the heaviest railroad type steam shovels have recently been built successfully by the Osgood Co., Marion, O. The shovel, an Osgood 120-6 cu. yd. is the largest railroad type machine ever built and heretofore such shovels have been mounted only upon standard railroad trucks. On account of the time necessary in laying track for moving the shovel, railroad truck mountings were slow in getting from one point to another. This size shovel is much used in big rock quarries and open mines and usually when blasting operations were in progress it was necessary to lay track and move the shovel back from the face of the excavation and then up again after the explosives had been set off. These operations were not only costly in time and labor consumed in making the changes, but also in decreased output through time lost.



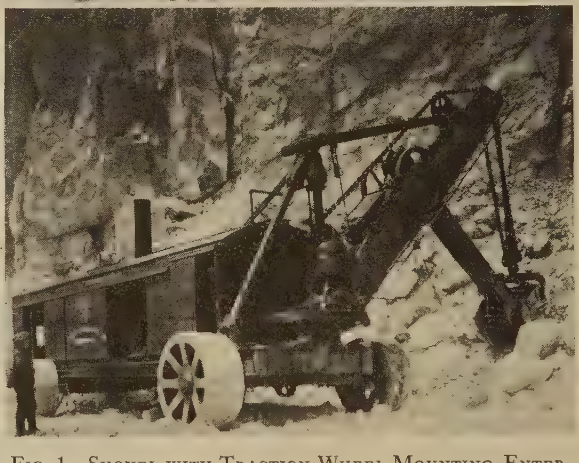


Fig. 1—Shovel with Traction Wheel Mounting Entering Quarry

Fig. 2—The Shovel at Work

Giant traction wheels were designed that measure 6 ft. in diameter and have a face of 36 in. on the front or drive wheels and 30 in. on the rear wheels. The front wheels are used as drivers and power is delivered through a series of gears from the powerful hoisting engines on the shovel. Steering is accomplished by turning the rear wheels by means of a screw shaft and traveling nut.

In recent tests made in a large Pennsylvania stone quarry the shovel was moved a distance in one day that, it is claimed, under old track laying methods would have required at least 10 days. The traction wheels also eliminate the necessity of pit men and the use of jack arms.

The advantages of traction wheels over railroad trucks for large railroad type steam shovels briefly summarized are: greater mobility of machine, elimination of pit crew, easier accessibility to face of excavation, elimination of tracks and reduction of side strains and racking to the machine in general. Traction wheels also have a decided advantage over any other type of mounting in that the traction wheels are much less complicated, simpler to operate and have a much lower upkeep cost.

The Osgood Co. is prepared to furnish traction mountings for its 120-6 cu. yd., 105-5 cu. yd., 73-3½ cu. yd., and 69-2½ and-3 cu. yd. railroad type shovels. Traction mountings on the 43-1½ cu. yd. have been standard equipment for some time and their successful use led to experiments which have developed the traction wheels for all sizes of railroad type steam shovels.

# Is Standarization Enough?

By William Ganschow

That standarization is the solution of a great many troubles, and the only method of eliminating great amounts of expensive dies, tools and machinery, is no longer questioned; *but is standardization enough?*

A great percentage of the users of mechanical equipment, while expert in its use, are entirely unacquainted with the terms to be used in specifying duplication of many of its parts. How many operators of a stem dredge, a coal elevator, or electric pump—or any other machinery—could state correctly the necessary data to obtain the replacement of, say, a gear? How many operators could specify pitch diameter, shape of teeth, etc.?

To be sure, they should be able to refer all of their troubles to the builders of the machine, but the practice which is growing constantly more universal, of buying such parts as gears, clutches, pulleys, governors, speed transformers, etc., from other manufacturers, has not only resulted in the use of many different types of "accessory" equipment, but has confused the builders' records—if such records are kept.

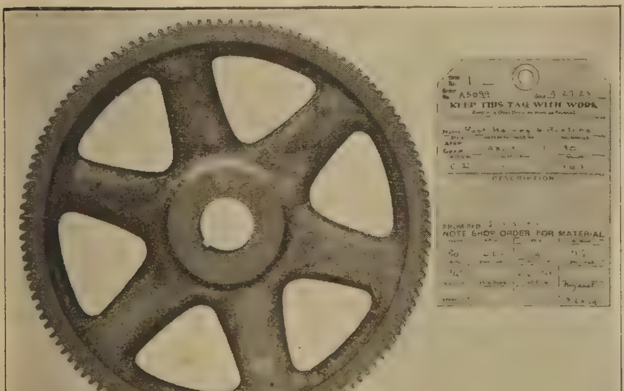


Fig. 1—Illustration of the Method for Marking Gears

There are, however, many kinds of commonly used articles which are more or less difficult to specify correctly and which are perhaps most often purchased "outside" by the builders of machinery units. Gears are perhaps the most commonly used and the least understood by the average operator, and few gears are now marked intelligibly so that replacement parts may be ordered with real assurance of correctness.

Realizing, from past experience, that the marking of gears meant the elimination of a great deal of trouble, the William Ganschow Co., pioneers in the cut gear field, have adopted the practice of marking on each gear not only the trade mark, but also a production number upon which the gear was manufactured and the date of its manufacture, as shown in the accompanying illustration.

Aside from the convenience which such marking affords in reordering, it is pointed out that it has the effect of inspiring confidence in the manufacturer; first, because it shows that he has confidence enough in his product so that he is willing to put his trade mark upon it; and, secondly, it shows that he has faith enough in its durability to invite the comparison of its length of life with that of similar articles, affording the user an accurate means of checking its period of use from the dating which it carries.

As an assistance to the movement for standarization, this system of plainly marking everything should not be underestimated, and, if generally followed, it would result in the saving of valuable time, not only on the part of the purchaser, but also in facilitating the rapidity with which orders could be executed in the shop of the manufacturer.

# Wallace Solder Pot

A new electric solder pot with automatic heat control has been added to the line of labor saving devices manufactured by J. D. Wallace & Co., Chicago. It greatly simplifies the problem of heating babbit, white metal, wax and other materials which are slow conductors of heat.

The Wallace solder pot is designed to overcome oxidation. When solder has been heated to 600° F. an automatic control goes into action. This control maintains the temperature of the contents of the pot and prevents overheating and underheating.

This control is an adaptation of the principle used in

Wallace Solder Pot Complete with Automatic Control the steam gauge. A volatile substance, which is very sensitive to heat, actuates a Bourden Tube which makes and breaks the electric current, thus controlling the temperature of the contents of the pot.

The pot will accommodate fifteen pounds of solder and will heat this amount to 600° F. in twenty to twenty-five minutes. This quick action is due to the fact that a 900 watt heating element is built around the entire container. Heat is applied to all parts of the sides and bottom of the container simultaneously, thus coming in contact with the solder at all points, and reducing it to a working consistency.

Once the container is filled and current turned on it requires no attention until refilling is necessary. Workmen may devote their entire time to actual production. There is no necessity in wasting time watching the pot.

The pot weighs only thirteen pounds, can be easily carried anywhere, and operates on either 110-V. or 220-V. alternating or direct current.

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STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912.

Of Cement Mill Edition of CONCRETE, published monthly at Detroit, Michigan, for October, 1923.

State of Michigan,— } ss.
County of Wayne,— }

Before me, a Notary Public, in and for the State and County aforesaid, personally appeared R. Marshall, who, having been duly sworn according to law, deposes and says that he is the General Manager of the Cement Mill Edition of CONCRETE, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor and business managers are:
Publisher—Concrete-Cement Age Pub. Co., Detroit, Mich.
President—R. Marshall, Detroit, Mich.
Managing Editor—Harvey Whipple, Detroit, Mich.
General Manager—R. Marshall, Detroit, Mich.

2. That the owners are (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent or more of the total amount of stock):
Concrete-Cement Age Pub. Co., 1807 E. Grand Blvd., Detroit, Mich.
R. Marshall, 1807 E. Grand Blvd., Detroit, Mich.
Harvey Whipple, 1807 E. Grand Blvd., Detroit, Mich.
F. F. Lincoln, Room 1205, Broadway, New York city.
R. N. Jackson, 1807 E. Grand Blvd., Detroit, Mich.
R. W. Lesley, Pennsylvania Bldg., Philadelphia, Pa.
Edward B. Bruce, Manila, P. I.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholders or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest, direct or indirect, in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers, during the six months preceding the date shown above is————. (This information is required from daily publications only.)

R. MARSHALL,
Manager.

Sworn to and subscribed to before me this 28th day of Sept., 1923.

(Seal.) PERSIS E. HILL.
(My commission expires August 18, 1924.)

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## Trade Publications

*The Howden-Ljungstrom Patent Air Preheater, Bulletin No. A-5* has recently been issued by James Howden & Co., Inc. Engineers, Wellsville, N. Y. The bulletin is 8½ in. x 11 in. and has 12 pages.

In connection with the use of the Ljungstrom air preheater, it is pointed out that the greatest source of loss in connection with steam boiler operation is the quantity of heat carried away by the flue gases. The practical benefits of the method of using the heat of the waste gases to raise the temperature of the air supplied to the fires in addition to extracting a part of the heat by means of economizers or as an alternative are claimed to be greater than one would deduce from simple arithmetical calculations. It is claimed that the advantage does not stop with the mere return of so many heat units per hour to the furnace. The hotter air supply naturally increases the furnace temperature and consequently increases the rate of radiant heat transmission to the boiler in a much greater ratio. This increased rate of heat transmission also has the effect of reducing the flue gases leaving the boiler to a temperature actually lower than they would have been had the furnace been supplied with colder air.

It is pointed out that this preheater is unique in that it embodies neither of the principles sometimes employed—passing the fresh air and the flue gases alternately through regenerating chambers or transmitting the heat from the waste gases to the incoming air through metallic surfaces separating the air passages from the flues—but carries heat continually in a mechanical way from the flue gases to the incoming air. The apparatus is so designed as to be compact, simple in operation and permits of ready application either to existing boiler plants or new installations.

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The Westinghouse Electric & Manufacturing Co. has issued a new catalog covering completely the company's line material and porcelain insulators. The catalog is supplementary to the company's large supply catalog and has been issued for the convenience of purchasers of these two allied lines of materials. It is a 200 page publication of convenient size, fully illustrated.

# Men and Mills

## *Notes from the Field*

Production in Alpena plant No. 1 of the Huron Portland Cement Co. has been restored to normal after an interruption since the destructive fire in the finish-grinding department a month ago.

While the wheels have been turning in the reconstructed department for several days, yet it was not until late in September that normal production was reached.

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Shipments from the Egypt mills of the Giant Portland Cement Co. are exceedingly heavy, and Sunday packing is being done to catch up with orders.

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The situation confronting the cement industry for the balance of 1923 is exceedingly hopeful, and with the amount of construction necessary to make up for deferred building, the year 1924 should bring a continuation of the present activity in the cement industry, according to statements attributed to L. R. Burch, president of the Atlas Portland Cement Co.

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On October 1, the Michigan office of the Truscon Steel Co. was moved to the company's new building at 615 Wayne St., Detroit, Mich., and now occupies the entire second floor. The office includes a complete service organization and engineering department. This office will furnish complete information, estimates and details on all Truscon steel products, including reinforcing steel, metal lath, steel windows, steel joists, highway reinforcement, standard buildings, inserts, foundry flasks, platforms and pressed steel parts.

The general advertising department of the Truscon Steel Co. will also be located on the same floor with the Michigan office.

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Plans are being made by the Peerless Portland Cement Co. for a new cement plant to be built in the vicinity of Detroit, Mich. Investigations are under way to determine a suitable location.

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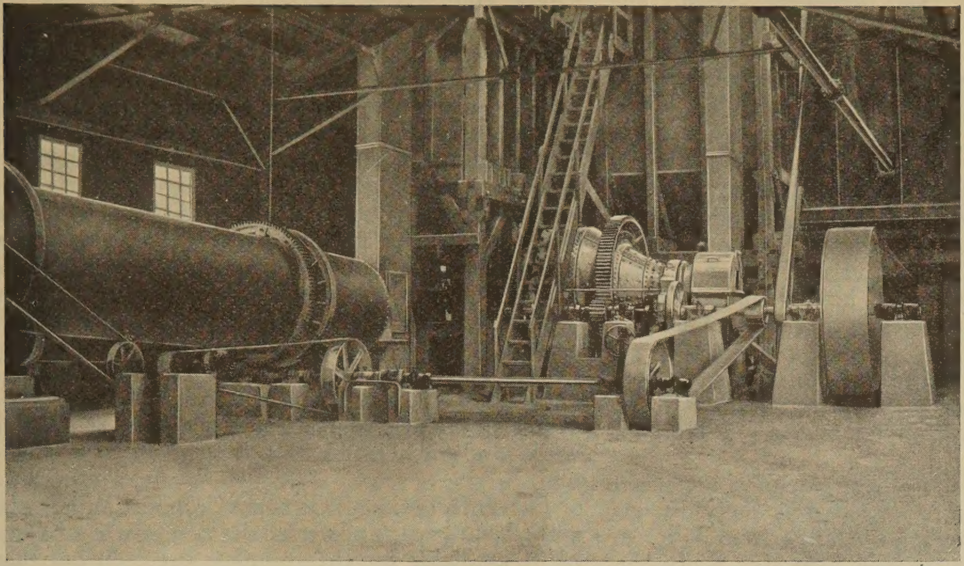
The Santa Cruz Portland Cement Co. has purchased 60 acres of land containing limerock for quarrying purposes, according to a local report.



# The Most Up-To-Date Limestone Grinding Plant

## Includes a Hardinge Mill and a Ruggles-Coles Dryer

This plant supplies limestone for road construction work, concrete, and ground agricultural limestone. Here is the general arrangement:

Mine and quarry to cars. To No. 7½ Gates Crusher. To elevator. To 30′ long revolving screen.

Oversize return No. 5½ Gates crusher returned to revolving screen.

Sizes 2½″ -- ¾″ for road work and concrete construction work or recrushed for additional feed to pulverizing department.

¾″ and under to A-8 Ruggles-Coles Dryer to 7′ x 36″ Hardinge Conical Ball Mill and Hum-Mer electric screen to bin to Bates valve sacker or direct to car. (12-15 tons per hour)

It is the use of the Ruggles-Coles dryer and Hardinge Conical Ball Mill combination which results in an almost fool-proof pulverizing department.

**Write for information on the system covering your requirements.**

**HARDINGE COMPANY**
YORK, PENNSYLVANIA
BRANCH OFFICES
NEW YORK, N.Y., 120 BROADWAY
SALT LAKE CITY, UTAH; NEWHOUSE BUILDING
LONDON, ENGLAND; 11 SOUTHAMPTON ROW

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YORK, PENNA.
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CABLE ADDRESS
"HARDINGMIL NEW YORK"

Newspaper dispatches from Petoskey, Mich., announce that the 2,500-bbl. plant of the Petoskey Portland Cement Co. is to be enlarged to 4,500-bbl. daily capacity. Foundations for new kilns are to be put in next spring and the new unit is to be ready early in 1925.

The Trinity Portland Cement Co., Dallas, Tex., has recently purchased in excess of 600 acres of high grade cement rock and shale at Fort Worth, Tex. upon which it proposes to erect a 2500-bbl. capacity, wet process cement mill, construction work having already been started. This plant will be known as Trinity Portland Cement Co. plant No. 2.

W. H. L. McCourtie is president of the company; C. E. Ulrickson, 1st V-Pres. and Gen. Mgr.; O. V. Bartholomew, general superintendent and J. J. Horgan, purchasing agent.

The company at Dallas has recently increased its production from 300 to 400 barrels daily by increasing the burning zone of the kilns from 8 ft. to 10 ft. It has also installed one new No. 8 Jumbo Williams crusher.

Susie W. Dickinson, wife of William Dickinson, vice president of the Marquette Cement Mfg. Co., died at her home, Hadleigh Hill, St. Joseph, Mich., September 18.

William Henry Merrill, founder-president of the Underwriters' Laboratories, Chicago, died September 17.

Carl J. Lofstedt has resigned from the Tidewater Portland Cement Corp. to accept a position as mechanical engineer with the Clinchfield Portland Cement Corp. of Kingsport, Tenn.

Certificate changing the location of its New York office from 8 West 40th Street to 469 Fifth Avenue, New York city, has been filed in the office of the Secretary of State by the Edison Portland Cement Co. of New Jersey. W. D. Cloos is agent for the corporation.

D. R. Long of New York, formerly eastern sales manager of the Atlas Portland Cement Co., has been transferred to Birmingham, Ala., where he is sales manager of the same company for the southern states. He succeeds F. G. Conkling at Birmingham. Mr. Conkling is now associated with the National Cement Co. of Birmingham, Ala.

The big plant of the Lehigh Portland Cement Co. at Tarrant City, a suburb of Birmingham, Ala., is almost completed and cement is being made and over 200 men are employed at the present time. Within a short time this plant, which cost approximately $3,000,000, will be producing cement at the rate of 1,500,000 barrels per annum.

Construction work was commenced November 15, 1922. It is one of the largest plants in the entire country. With the starting up of this plant there are now four cement plants in operation in the Birmingham district. These plants are: the Atlas Portland Cement Company's at Leeds, National Cement Company's at Ragland, the Phoenix Portland Cement Company's at North Birmingham and the Lehigh Portland Cement Company's at Tarrant City.

The Lehigh company owns 250 acres of cement rock lands at Tarrant City on which the plant is located.

The Gulf States Portland Cement Co., operating a large cement plant at Demopolis, Ala., on the Warrior river, has leased the Pratt-Warrior coal mines on the Warrior river and will operate these mines on a royalty basis. By this means the cement company will be insured a stable supply of coal at all times for the operation of the cement plant.

The Superior Portland Cement Co. has been granted a license by the Federal Power Commission for the development of waterpower on Jackman Creek, Skagit County, Wash.,consisting of a diversion dam in the stream at a point about three miles above Van Horn, Wash., a conduit 2½ miles long with a capacity of 55 cu. ft. per second, a power house, and a transmission line connecting the latter with the cement mill. The power developed will be used to operate the cement works and for lighting.

The International Cement Corporation has already earned a full year's preferred dividend with a balance of $1.64 available for the common stock during the first half of the year ending June 29, 1923, according to newspaper announcements. The net earnings for the first half of the year were given as $636,000.

H. Struckmann, president of the corporation, is quoted as stating that not only would the company's properties be operated at maximum capacity this year to meet the growing demand of the trade but extensions and additions were in process of construction whereby the annual output would be increased more than 1,000,000 bbls. This, according to Mr. Struckmann, is typical of the cement industry throughout the country as to both maximum production and increased capacity. It is keeping pace with the country's development and is preparing itself to meet the country's requirements. A substitution of cement for other materials in many lines of construction work has greatly added to the demands for cement due principally to its adaptability and permanency as well as cheapness.

The Greencastle offices of the Indiana Portland Cement Co. have been moved to the State Life Bldg., Indianapolis,Ind. All communications to the company should be addressed to the Indianapolis office.

A new ambulance has been placed in Zeigler's garage, Northampton, Pa., for hospital service. The new auto was secured through the aid of the different cement companies nearby.

The Pennsylvania Cement Co. gave its employes a clam bake at Neverseen Park near Bath recently.

The employes of the Lehigh Portland Cement Company's office held their sixteenth annual picnic and clambake at Neff's Park, with about 300 in attendance.

The regular monthly meeting of the executive committee of the Lehigh Valley Safety Council was held recently in the Hotel Allen, Allentown, Pa. Major Henry A. Reninger, president, presided.

William J. Henry, for the past 18 years the general foreman of the Atlas Cement Company's quarry at Northampton, died at Catasauqua.

What proved to be one of the biggest blasts in the Pennsylvania cement region took place recently in the stone quarry of the Giant Portland Cement Co., when 150,000 tons of stone were loosened.

The scarcity of homes in the Northampton, Coplay and Egypt, Pa. districts has proved a hindrance to cement manufacturers in securing sufficient help. Many building lots are for sale cheap, but few new homes are being built.

Mark Danby formerly of Easton, for the past 12 years sales representative of the Alpha Portland Cement Co. through West Virginia and Maryland, died recently of heart failure at his home in Cumberland Md.

The Coplay, Pa. mills have day and night packing forces which will continue operation as long as cement on hand permits.

The Crown Cement Co. which has been testing land for a year or more around San Andreas, Calif., reports the outlook favorable, and a cement plant will be built near the old time Kentucky House, a few miles out of San Andreas. Large deposits of fine limestone have been proved up, and large areas have been purchased outright for cash and bonds have been taken on others. The project includes extending the Southern Pacific railroad into the property from Valley Springs, 12 miles west.

The boilers of the Brixment plant of the Louisville Cement Co. have been shut down and the heat and power at the Brixment mill are now being supplied by the portland cement mill. The company reports that August was the biggest grinding month on record, both in the raw crusher department and clinker room and that it was also the biggest burning month on record.

Preliminary plans are being made by the Clinchfield Portland Cement Corp., Kingsport, Tenn., for a new portland cement plant to be located near Macon, Ga. The proposed plant will probably be a wet process plant, sufficiently large to produce 2,000 bbls. of cement per day.

J. L. Medler, of the Atlas Portland Cement Co., was reelected president of the New York Credit Men's Association at the annual meeting and election of the organization at the Hotel Astor, New York city, September 20.

Contract for the construction of the new three-kiln cement plant of the Kansas Portland Cement Co., Bonner Springs, Kans., has been awarded to the Macdonald Engineering Co., Chicago. The new Kansas plant is being built by the International Cement Corp.

The fourth freighter of the Bradley Transportation Co., the steamer B. H. Taylor, was launched at the Lorain shipbuilding yards September 1. It will be used for transporting limestone from the Rogers plant of the Michigan Limestone and Chemical Co. This steamer has a length of 552 ft. 60-ft., beam and is 32 ft. deep. It is equipped with triple expansion engines and three Scotch boilers. The equipment includes the most modern conveyor machinery, supplied by the Robins Conveying Belt Co. The ship has a Sperry gyroscope compass and searchlight of 40,000,000 candle power. She is equipped with a boom 155 ft. long from which the cargo is discharged on the dock and it is expected that the unloading equipment will enable a cargo of 10,500 tons to be unloaded in about 5 hours.

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